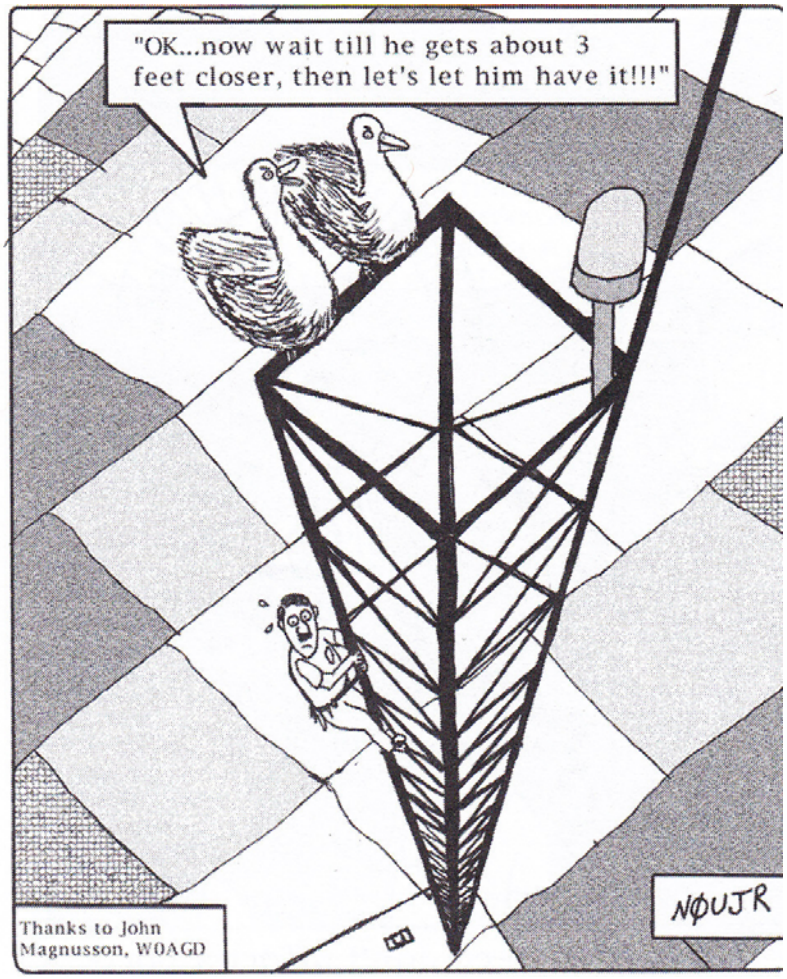
ATCO NEWSLETTER

VOLUME 27 NUMBER 4 **October 2010**

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

Thanks to Greg Trook N0UJR for allowing us to share his cartoons.



ACTIVITIES ... from my "workbench"

Well, another summer has passed us by. I hope you have all of your outside antenna chores in order as it's really hard to do with snow flying. Yes, I hate to say that but let's be realistic, we're bound to get some of it! Right now I'm busy picking up those nasty acorns from my oak tree instead of doing my own antenna maintenance. However, I DID manage to accomplish painting the tower with aluminum paint. I started just touching up the rust spots but eventually said to myself, "I'm already at the tower top and covered in aluminum paint, why not do it right". So, one quart of paint and 2 hours later, I finally reached the ground. THAT was a real good feeling!

So, now the tower is painted but my 48 element 70 cm antenna needs work. I discovered, when at the tower top, a wire connecting the feed harness is broken. Unfortunately it's located where I can't get to it so the entire antenna must be removed to fix it. That's a big chore and by the time I decided to take it down, it's too late in the season to start now. Actually, the antenna is over 25 years old now so repairing it is probably out of the question. Therefore, I'll spend time inside where it's nice and warm to build a new one, a 96 element collinear this time, and install it next spring during better weather. Since the 2 meter antenna must also be removed, I'll build a new cross arm for it and create elevation capability too. I know, I know, I just don't find enough to do around here. That said, the living room still needs painting. Painting experience, anyone?

The repeater has been rather tolerant this year. Yes, there are things I'd like to do but you know what they say about things that still work. That said, Dale built a timeout timer and installed it a few months ago which is now working ok after resetting the audio level. The SanDisk ID generator has no power-on reset feature so if a power interruption occurs, someone must travel to the site to re-start it. Charles, WB8LGA, wrote a software routine to emulate a "start" command once upon a power ON condition. So far, I have not had time to build the small circuit and put it into a SanDisk unit (I have a spare one). That's a task for this winter.

Another thing on the list is to re-install the repeater roof camera. It's finished but since it plugs into the 10G transmitter on the roof, I'd like to remove the 10G transmitter, install the 10G receiver in it and test the camera and receiver together. Nice plan but it too takes time. I think I'll move this one to the front of the line because if I don't, it'll be too cold to work outside on the roof!

On the last trip to the repeater a week or so ago, my purpose was solely to increase the digital transmitter video gain. As you may recall, I am having receiver lock problems with the signal and figured it was due to a higher than normal video level. Upon inspection, Dale and I found the video actually was too low. Never-the-less, we decreased it from about 0.8 volts to about 0.5 volts. (It should normally be about 1 volt). As you may have guessed, it got worse! Therefore my latest trip was to increase it to about 1 volt only to find that 0.8 volts is as high as it would go. In fact, all the other (4 in all) were about 0.8 volts with the gain pot turned all the way up. We are both puzzled about this as we knew that at one time it was fully adjustable around 1 volt. Oh well, we were not going to work on the controller at this time so we left it as is. I DID connect the digital transmitter video line to the output driving the small color monitor which we left disconnected so the level now going to the transmitter is about 0.9 volts. At home, it looks better but seems it could be higher yet. Some time in the near future we'll look into that.

Now, let me discuss another subject that's been on my mind for a while. Maybe it's just me but I've noticed a general lack of ATV activity lately. Our average Tuesday night check-in population seems to be dwindling down to about 10 people. Historically, it was 15 to 20 check-ins. Is it the economy or are we just getting tired of "the same old thing"? Is ATV becoming boring? I DO think we need some fresh blood to liven things up but it also seems that the ones that have been regulars in the past, haven't been heard from for some time now. I need suggestions for new ideas at the repeater, Net night topics and articles for this Newsletter. Let me know if you have any things to try. I also need volunteers willing to help out in both construction and activity organization. I've been the NET CONTROL for quite some time and am willing to continue but it would be great if we could pass the activity on to others sometimes. Let's discuss this matter at greater length at the Fall Event coming up on the 31st. I need each of you to help scout out possible new people for our club as we have had no new members so far this year.

Things we can do:

- Volunteer for public service events – Columbus marathon, TOSERT bike race, Airport tests, ?????
- Add repeater features
- TV station tours
- Pizza parties
- Fox hunts
- ATV field day
- DX reporting
- Antenna parties
- Mobile ATV

That's about it for now, guys. Don't forget the Fall Event on the 31st. I'll see you then.

73, WA8RMC

WIFI CAMERA GENERATES IMAGES FROM RF

Here's an interesting concept that I'm sure most of have wondered about at one time or another. That is, "Wouldn't it be great if we could SEE the antenna RF pattern"? That could take antenna modeling to a new level! In any case, below is a partial article excerpt from TV Technology Magazine. To see the complete article, control-click on THIS link. I still have doubts so I suggest reading with "an eye of skepticism". If it's for real, Tom, WU8O, you may have a demand for your CAN antennas! Ed.

When trying to optimize an antenna's position in a room, have you ever wished for the ability to *see* RF the same way we see light--with all bright spots and shadows revealed? Bengt Sjölén, Adam Somlai Fischer, and Usman Haque have built a very ominous looking device that illuminates an area with RF and captures them on a panoramic "RF camera" that comes close. The device uses an array of "cantennas" made from spice cans, some motors and a netbook computer as a controller. A video is available showing the device in operation and construction details.

The builders explain how it works:
Radio waves at WiFi's wavelength behave similar to light in that they are reflected off almost all solid objects to varying degrees, just as when we see colors we see the light from a light source being reflected off an object into our eyes. And, just as with light, some materials are opaque and some materials are more or less transparent." They further explained that they could do this RF visualization by pointing an antenna or multiple antennas and then measuring the resulting signal strength. They use this information to create full-screen images. Could such a device be used to show the best spot for an antenna in an office building?

I would say yes for transmitting antennas, but just as you can't see the light in a room unless you're looking at the source or something that reflects it (walls, dust in the air, tables, chairs) the same limitation would apply to the WiFi camera. Perhaps someone will build one of these with larger antennas and circuitry designed to detect UHF TV signals.

The Wifi Camera is a camera that takes "pictures" of spaces illuminated by wifi in much the same way that a traditional camera takes pictures of spaces illuminated by visible light. The camera reveals the electromagnetic space of our devices and the shadows that we create within such spaces, in particular our wifi networks which are increasingly found in our daily lives, in coffee shops, offices and homes throughout cities of the developed world.

Radio waves at wifi's wavelength behave similar to light in that they are reflected off almost all solid objects to varying degrees, just as when we see colors we see the light from a light source being reflected off an object into our eyes. And, just as with light, some materials are opaque and some materials are more or less transparent.

We do this basically by pointing a wifi antenna (or several antennas) and measuring the signal strength throughout a view - the faster we can do this, the faster we can create full-screen images.

The latest version of the wifi camera is able to create images much more quickly because it has more pixels and we have a custom built board for analysing the wifi spectrum (around 2.4GHz). The result of all this is that we can even 'see' the illumination cast by mobile phones and microwave ovens!

Tom, WU8O, I think you could get rich providing can antennas for a project like this. You should look into it!!!!

MR. WIZARD PREDICTS FLAT-PANEL TV'S

Not only did Don Herbert predict flat-panel TVs around 50 years ago, he did so in a way that a child could comprehend.

Herbert was otherwise known as the Peabody Award-winning Mr. Wizard, whose science shows aimed at children ran nearly 15 years in the '50s and '60s. Herbert also pitched for General Electric in the company's eponymous "Theater" series, which was hosted by the late President Ronald Reagan. The flat-panel prediction was based on research at GE and summarized in a three-minute video clip.

Herbert begins by explaining how a mirror reflects nearly all of the light that hits it, and how scientists sought to rend more.

"Scientists at the General Electric Research Laboratory have discovered a way to amplify light directly on a surface," he says. Herbert then turns an ultraviolet light onto a phosphorus screen. He then sends an electric current through the screen and increases the light tenfold.

"The current that went through the screen actually turns into light, making the picture brighter," Herbert says. "A discovery like this could bring many changes to science and industry."

Herbert proceeds to introduce Dr. C.G. Suits, GE's vice president and director of research. Suits also predicted the microwave oven, and would later gain fame for inventing the process to synthesize diamonds.

Suits explains how the light-amplification process could lead to the elimination of cathode ray tube TVs. "Our set designers think that future TV screens might look like this,"Suits says, gesturing to what looks presciently similar to today's computer monitors.

"It could be formed as a flat screen by means of light amplification. It'll be some time before these projects become a reality." Seen on " **YOUTUBE"** September 29, 2010

(Thanks to Robert Gonsett of *CG Communicator* for finding this.) – *McAdams. Original source unknown.*

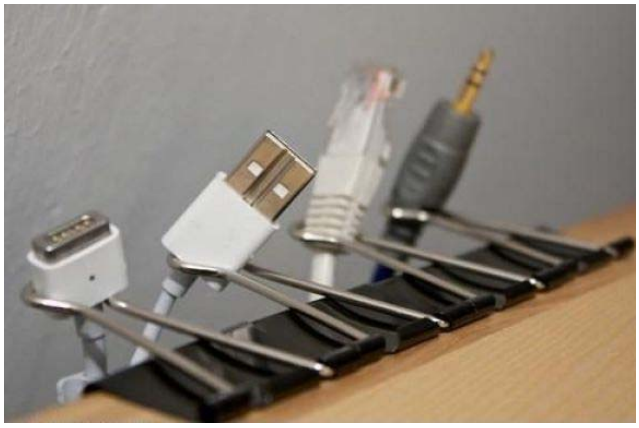
To watch the U-Tube video, Control-Click on the link below.

http://www.youtube.com/v/aj__1PmmqFs&hl=en_US&feature=player_embedded&version=3"></param><param name="allowFullScreen" value="true"></param><param name="allowScriptAccess" value="always"></param><embed src="http://www.youtube.com/v/aj__1PmmqFs&hl=en_US&feature=player_embedded&version=3" type="application/x-shockwave-flash" allowfullscreen="true" allowScriptAccess="always" width="640" height="390"></embed></object>

NOVEL USES FOR COMMON ITEMS

I just couldn't resist showing you these ideas! The one below makes sense. Look Close. They are actually heavy duty paper clips as a makeshift cable rack. Good idea!

The one on the right is another matter. But, I suppose in a pinch, it might just fix rain issues but hope the wind never blows.

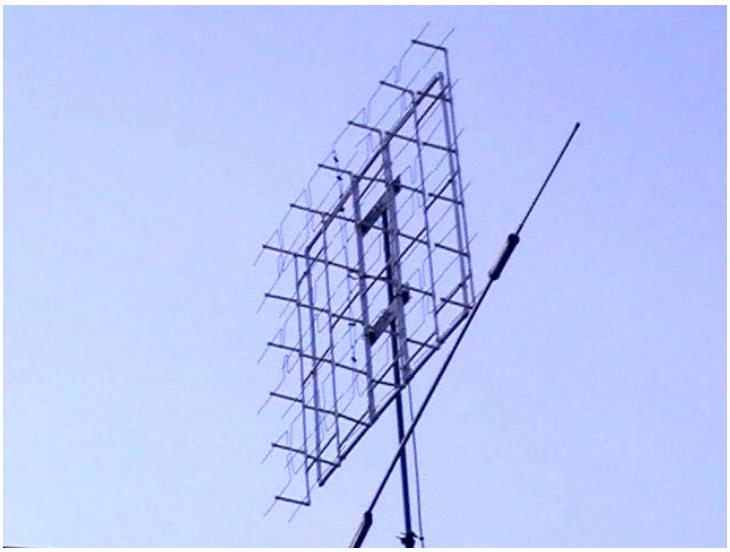


If you see any humorous pictures like these, please let me know about them. Ed.

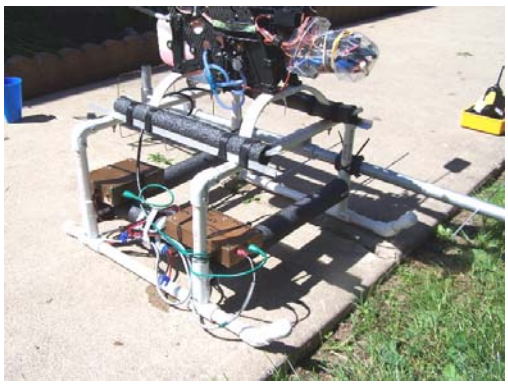
WA8KQQ's NEW 72 ELEMENT ANTENNA

A fellow ham buddy finally got some loose time and came over to help me out. The pictures I sent you a good while back of the new collinear that I built is up and being tested. I just finished it about supper time today and could not believe the shape the old 48 element was in. It had been up there like 30 years. Most of the standoffs were gone and the whole driven element section was just hanging there like a curtain. I could still see and get into the W8BI ATV repeater with it on the Wednesday night net. I have some experimenting to do but looks like it will work ok. Don't get much of a chance to get to the ATCO gatherings as I hate freeways and driving in big places I am not familiar with.
…Dale WA8KQQ

Dale, I'm in the same boat as you. I looked at my 48 element collinear the other day and discovered a broken feed harness wire. I can't fix it in place and now it's too late this year to remove it and build another one so a 96 element collinear will be my winter project unless you want more antenna experience! Let us know how much gain the new antenna has. Also, what type of feed line matching do you use?
WA8RMC



KC8LMI CHECKS OUT HIS ATV RC HELICOPTER



Sun, 22 Aug 2010

My Raptor 90se helicopter is equipped with a 1.5 watt 439.25 transmitter, identifier, 8 element quagi (horizontally polarized), and lipo battery. I don't have a camera on it yet as its still being tested. Total weight is around 20 lbs. and flight time is 10-11 minutes to a tank. It flies great.

…KC8LMI

Notice the yagi type of antenna mounted on the frame. It's very unique. I'll bet it's highly directional. Ed.

150 CAMERAS AND COUNTING

Small-town collector corners market on television's past

PART 1 by James E. O'Neal *Reprinted with permission from TV Technology Magazine (www.tvtechnology.com)*

A lot of us are collectors. For some it's coins, stamps, or maybe match books. Others, operating on a somewhat grander scale, with a passion for gathering together *objets d'art* or perhaps classic cars.

Chuck Pharis is one of those who collects on a grand scale; however it's not cars or paintings, but rather television cameras—broadcast type cameras. Pharis has been collecting them for 40 years and isn't finished yet.

"I pulled my first camera out of a dumpster behind a TV station in San Francisco," said Pharis. "This was a Norelco PCP-70. This was probably in 1970, or pretty close to that. The thing was a nightmare, but I decided to keep it."

Pharis estimates that he now has more than 150 broadcast cameras in his collection. They range in size and weight from the awesome RCA TK-40 (with a 44-inch long body and weighting more than 300 pounds with viewfinder, lenses, and handles attached), down to RCA's first ENG offering, the TK-76 (handheld and weighing a mere 19 pounds).

The cameras in Pharis' collection date from the late 1940s and include monochrome and color models from virtually all manufacturers, including Ampex, DuMont, General Electric, GPL, Marconi, PYE, the RCA, and even one very special model from Zenith.

"That camera was used to demonstrate high-definition television to the FCC in the early 1990s," said Pharis. "Zenith made just a few of them then & the development costs were over $800,000. I got this one courtesy of Wayne Bretl [principal engineer at Zenith Electronics]. They not only sent me the camera, but also several crates along with it—manuals, racks, spare tubes, spare preamps; all sorts of things to go with it. I got home and there were seven giant pallets full of equipment waiting for me. I was able to get the camera up & running within a few weeks."

FROM TINSELTOWN TO TURTLETOWN

Pharis' cameras came from all across the country and are now under one roof at his home in this small southeast Tennessee town (population 1,546). Actually, Pharis has been a resident of Turtletown for only a matter of months, having grown up in Southern California and spending most of his lengthy career in broadcasting in the Golden State.

"After 40 years in the business, I decided that it was time to get out of California," he said. "I needed space to set up my collection and land here is a lot more affordable here than in Los Angeles. There's also no crime, no smog, and a lot of beautiful scenery. It's just a great place to retire."

Pharis said that he homed-in on Turtletown after searching online for a location that met his requirements. Early this year, he found a custom-built home and nine-acre parcel of land that seemed ideal for his purposes, and was on a plane shortly afterwards to inspect the property first-hand. Soon, four large trucks loaded with tons of broadcast gear were on their way from Los Angeles to this tiny town situated about an hour and a half from Chattanooga.

Chuck Pharis poses with one of the many television cameras he's rescued from the dumpster.

For now, most of Pharis' cameras, lenses, tripods, pedestals, CCUs, viewfinders and other gear are packed away like cordwood in an existing storage barn located a few feet away from his new home. But he has plans to break ground shortly on a much larger building that will allow him to properly spread out his treasures and set them up in an operating environment. He envisions ultimately creating a museum devoted to equipment used for electronically capturing images.

"My goal is to share this vintage broadcast equipment and the history behind it with anyone who is interested," said Pharis.

NOT JUST CAMERAS

Pharis' collection is not just limited to television cameras; as like so many in the broadcasting, he got his start in radio. I started college in 1964 and the school had a radio station," Pharis said. "I was always interested in electronics and got a DJ position there and started taking broadcasting classes."

This first career step, and Pharis' proximity to the Hollywood film and television industry, may account for a large microphone collection that complements his cameras. It spans some seven decades of microphone evolution, and includes many classic examples of carbon, condenser,

ribbon, and just about any other technology that can be used to convert sound into electricity. Along with the mics are several large examples of early audio mixing gear. These consoles are also slated to be restored to operating condition and placed on display in Pharis' museum.

He also has an extensive collection of television-themed children's toys, including cameras and remote production vehicles. In another area of his home, are a number of industry awards, including three Emmys. Pharis spent the majority of his career as a senior video engineer with the ABC Television Network in Hollywood, working on a number of studio productions including "American Bandstand," "The Lawrence Welk Show," and "Welcome Back, Kotter," and also spending time in the field with ABC Sports.

"I did lots of sports events while at ABC, including four Olympics," he said. "Since I retired from the network in 2003, I've been working on a contract basis with ESPN doing college football."

These RCA TK-60 cameras along with lenses, power supplies and monitors await full restoration. Pharis has enough vintage video gear to supply the studio needs of a large 1950's television network operation.

In touring Pharis' relocated, and currently somewhat concentrated collection, it's difficult not to ponder the scope of events and subjects that some of these lenses and tubes have captured—especially the early RCA color cameras, which in the beginning of the NTSC color era were sold in very small numbers due to their cost (more than $500,000 in today's currency) and were generally reserved for special programs, due to extra costs involved in operating and maintaining them, as well as the expense in staging color productions for the very limited number of color receivers in viewers' living rooms. In addition to the very early TK-40, Pharis seems to have cornered the market by amassing an additional five TK-41s, a slightly improved version of the 40, but which retained its physical profile and weight.

The most recent of the TK-41s had arrived shortly before my visit and included an element that's often missing when early cameras are unearthed—the camera control unit, or CCU. Pharis' latest find also included what RCA termed a "Colorplexer." Today, we'd call it an NTSC encoder. The camera chain is 100 percent complete and in its original operating configuration—something that is nearly impossible to find today.

"This is something that I'm really proud of; probably the one thing that I'm most proud of, as it's 100 percent complete," said Pharis. "This will be my first working TK-41. Hopefully I'll have it up and running within the next year."

This recently acquired CCU and "Colorplexor" is the missing link for restoring to operation one of Pharis' RCA TK-41 three IO color cameras.

Items are packed together so tightly in the temporary storage facility that it's sometimes difficult to pick out rare items without first being alerted to them by Pharis. An exception to this was a large pale green hood-like affair reposing on the concrete floor. Pharis hefted it, explaining that it was part of an early video "recording" scheme created by Allan B. DuMont.

Before the invention of videotape recording, the only way to capture a television show was by photographing images from a CRT screen onto motion picture film. Image quality from these "kinescopes" was generally poor and DuMont wanted a better way to store studio programming created at his fledgling network. The result was the "Electronicam," a hybrid television/film camera, which contained an optical relay system that split incoming light to both a television pick up tube and motion picture camera. The film camera "saw" the same thing that the television tube did, and when the film was processed, all that remained was to reassemble individual segments back into a high-quality film print of the live production. This was aided by tally lights tied to the video switcher, which marked the head of the film take when the camera was put on-air by the TD. "This one was probably used to record 'Captain Video,' Pharis said. "I have the original manuals for these. DuMont made both a 16mm and 35mm version. Jackie Gleason used the 35mm version for 'The Honeymooners,' as it had better quality."

Even though Pharis rejoices in his discovery of a complete TK-41 camera chain, he has unearthed another item upon which he places an even greater value, as it is truly one-of-a-kind. And this item was created with paper and ink; not wires and electron tubes. It's not stored with the cameras, but rather locked away in a safe place.

In Part 2, Pharis explains how the most prized item in his collection—the original 1938 signed artwork for the ubiquitous RCA "Indian Head" test pattern—was rescued from a pile of trash headed for a landfill.

A PATTERN FOR TESTING

Collector's treasures include 'Holy Grail' test pattern image

Part II by James E. O'Neal *Reprinted with permission from TV Technology Magazine (www.tvtechnology.com)*

A generation or so ago, a certain male figure graced television screens in countless millions of homes in America. His visage was not exclusive to any one station, or even to a single network. He never received any compensation for his daily appearances, and no one is even sure if he had a name. Yet, he was as well known as Milton Berle, Captain Kangaroo, or Buffalo Bob. And like one of the denizens in Buffalo Bob's stable—Clarabell the Clown—he never spoke, not even on his last on-air appearance.

During his run, he was simply referred to as "the Indian-head," or just "the Indian." Today he'd be referred to as "the Native American," but political correctness wasn't really a big part of the U.S. landscape 50 or 60 years ago.

The figure was that of a Native American chieftain, complete with his feathered war bonnet, and if he were a real being, he would have turned 72 this past August 23. This was the date in 1938 that an artist identified only as "Brooks" completed his or her drawing of the figure. It had been commissioned by the Radio Corporation of American, and presumably "Brooks" was paid for the work shortly after its completion. The thought of a continuing royalty on a "per use" or "per appearance" basis, rather than a one-time payment, must never have been considered, as "Brooks" would have been set for life from practically that moment on.

(Even the mighty Radio Corporation of America didn't sense a lot of potential dollar signs in the artwork back, as they allowed the copyright to expire somewhere along the line.)

RCA had chosen the figure to adorn its latest television test pattern, and in a little more than a year after the Brooks' drawing was delivered, the completed pattern was ready for "prime time," if anyone could have used that term to describe television in 1940, the year that marked the first on-air appearance of the "Indian Head" test pattern.

Brooks' artwork now resides in something of a Mecca that offers homage to RCA and other early television equipment manufacturers. This particular shrine is maintained by one Chuck Pharis and has been relocated from Hollywood to this very tiny and remote southeastern Tennessee town. Pharis' goal is to create a public museum centered around restored broadcast cameras from television's early years. And the Indian Head image will certainly be spotlighted, as it represents a type of "camera" that predates the earliest studio camera in Pharis' collection.

The Indian Head test pattern, as seen on millions of American TV screens, was not televised via a studio camera, or even in the form of a "slide" scanned by a television "film chain." It was actually the nucleus of a special camera that was devised in the 1930s and used extensively to wear and tear on studio cameras, lights and the several racks of tube-type support equipment needed to put a live picture on the air.

A CAMERA WITHOUT A LENS

This unusual "camera" took its name from the tube that created the test pattern or other image, the monoscope sometimes referred to as a "monotron." (The Dumont organization had its own version of the tube and gave it a rather sinister sounding name—"Phasmajector.")

The Indian Head test pattern soon became a television icon and was literally moved inside RCA's monoscope camera tube. (For those not familiar with the monoscope, it appears very similar to an ordinary small cathode ray tube—narrow neck with electron gun at one end and a flared "screen" area at the other end. However, there is no phosphor screen; just an aluminum plate inside the tube, with the image to be televised printed in special ink on that plate. Instead of exciting phosphors, the electron beam scans the printed image and a small electrical signal corresponding to blacks, whites and mid-tones is taken directly from the plate.) Most early stations had monoscope cameras tucked away in a rack somewhere where they ran 24/7. The Indian Head appeared on a generic test pattern, but for an additional fee, RCA would customize it with a station's call sign, city of license, channel number and other information. They sold a camera—the TK-1A—that used this tube to a very large number of early TV stations.

Pharis, as do some other collectors of early television gear, has several monoscope cameras tucked away with his studio and field models; however, he has something else in his collection that is strictly one-of-a-kind. This is the original artwork commissioned by RCA more than 70 years ago.

And there's a story behind the artwork. According to Pharis this sacred icon of the TV cult nearly wound up in a New Jersey landfill.

THIRTY YEARS IN HIDING

"In the 1970s, construction workers were demolishing a building at RCA's Harrison [N.J.] tube operation," Pharis said. "RCA removed everything they wanted, leaving the rest for the demolition contractors to dispose of. One of the workers had a load of ceiling tile to discard and when he opened the closest dumpster he found it full of paper—TCA artwork. The guy was a little curious and skimmed off the top layer. He took this home and found the Indian artwork. Everything else went to the dump."

Chuck Pharris and the original RCA Indian Head test pattern.

Pharis says that the contractor was familiar with the Indian Head pattern, having seen it, like many of his generation, on almost a daily basis on TV. He decided to hang on to it and put it on a closet shelf where it remained for some 30 years.

"He was getting ready to sell his home and move into a rest home and his son was helping him clean out the house," Pharis said. "The son decided to research the Indian Head on the Internet and came across my web site which features a reproduction of the test pattern. We made a deal and he sent me all of the remaining papers and artwork."

The box that he received not only contained the Indian Head drawing, but also the component parts of the test pattern—concentric circle drawings, resolution wedges and the like.

"This is really the Mona Lisa to me," said Pharis. "If you look carefully, you can see the slight hole in the paper the person who drew this made with their compass."

He soon had the drawings authenticated by an art expert who verified that it was the real thing.

"In the original 1938 Indian drawing you can see what looks like a little bit of color," said Pharis. "Actually that's due to the paints used back then. One of them must have had a little iron in it and it's so old that this is oxidized, adding a slight amount of color."

Pharis decided to make the artwork available to other vintage television enthusiasts, and after checking for a copyright (it was by then in the public domain), had the material copyrighted and scanned at a very high resolution by a friend, Pete Fasciano. Fasciano later developed some variations on the original test pattern theme—one of these is a 16:9 aspect ratio version—and Pharis makes a complete package available via his web site. He has also sold the test pattern packages at several NAB Shows. The demand for "the warrior on a test card" still runs high. Pharis estimates that he has delivered more than 1,000 copies to lovers of early television lore.

"The people who want them are mostly in this country, but I have had several orders from outside the U.S.," he said.

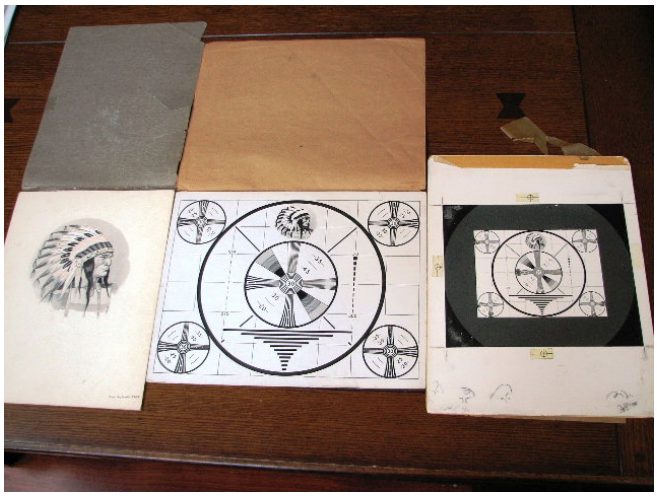
DESPERATELY SEEKING 'BROOKS'

Early on, Pharis tried to contact the obscure "Brooks." He followed several leads as to the artist's identity and location, but got nowhere. He eventually contacted the PBS "History Detectives" to see if they could ferret out "Brook's" identity.

"They went crazy over this stuff," Pharis said. "They spent six months trying to figure out who 'Brooks' was, and why the Indian head was used, but just couldn't crack the case. They did locate the original technical data for the Indian Head test pattern and sent me a copy, but that's as far as they could go.

Pharis says that he considers the Indian Head artwork to be the crown jewel in his large collection of television-related artifacts and plans to hang on to it. "However, I am thinking about passing it along to the Smithsonian when I'm gone," he said.

The Indian Head artwork and some of Chuck Paris' video camera collection may be viewed on his Web site, www.pharis-video.com



These historic items almost wound up in a New Jersey landfill.

PIZZA PARTY FUN

Here we are again doing what we do best, EAT. And when we eat, there are few items better than pizza. This time Tom Taft, KA8ZNY, suggested that we visit his home area and try Flyers Pizza in Groveport. Good choice Tom. Although we had a rather light turnout, it was understandable because of the intense rain storm just before and during the gathering. Next time Tom, check the "Weather Gods" first, if that will matter! I'm open for suggestions for the next one.

CSVHFS CONFERENCE ANTENNA MEASURMENTS

While I was at the Central States VHF Society Conference in St Louis last July, I watched with interest at the antenna contest going on in the Hotel parking lot. I presented a talk to the group about Digital Television in the Hotel conference room but, in my opinion, the real activity was in the Hotel parking lot outside before conference talks started. They set up an antenna test range and measured all types of antennas from 144 MHz clear up to 10 GHz.

I was surprised to find that they put their source antenna close to the asphalt pavement and pointed it parallel to the ground. (My concept was to elevate the source antenna and point it up slightly to minimize ground reflections). They said it's best to keep the ground reflections as they become a constant. If the antenna points up at an angle, it's hard to tell where reflections may come from. They said to orient the test antenna up at least 10 feet above the ground and move it back and forth closer and farther from the source antenna. If there are dips and peaks to the received signal, there ARE reflections so either source and, or test antenna must be re-positioned to eliminate or minimize this. Then and only then will an accurate gain measurement result. Good information for our next antenna party.

The pictures below are some of the unique antenna designs. Some were for 10 GHz operation and of the weirdest configurations!

Here, they are setting up the antenna test range. The source antenna and transmitter is at the far end. The person on the left is calibrating the test antenna side.

These guys are preparing to test a 10GHz dish. A calibrating microwave horn antenna is on the ground in front of them.

This is their wideband source antenna. It has constant gain from about 1 through 12 GHz. (I wish I had one of these!)

Here's a guy selling his version of the "Halo" antenna. He claims it works on both 144 & 220 MHz. I believe the price was $75. A smaller 440 MHz version is below the table.

Here, they are preparing to test the antenna on the left. I don't remember the actual gain figures but DO remember it was impressive.

Don't you just love the way some Hams like to "decorate" their vehicles? There were more, but these were my favorites! I assume they loaded up the car like this just to bring to the Conference but, who knows! I just hope that they didn't have to travel far. They'd probably charge them extra on the Turnpike.

Here are pictures of the various 10 GHz portable rigs intended for "mountain top" operation. All are constructed in a way as to optimize a speedy set-up and for portability. Notice the unique feed arrangement of the one in the center. He chose to plumb the signal in copper pipe around to the back of the dish where the LNB is located. There were a number of people discussing this saying there could be serious phase problems. I didn't know what they were referring to but didn't want to appear dumb in company of the "experts".

A T C O

2010 FALL EVENT

12:30 PM Lunch/meeting

Sunday October 31, 2010

ABB PROCESS AUTOMATION

CAFETERIA

579 EXECUTIVE CAMPUS DRIVE

FOR MORE DETAILS, CONTACT

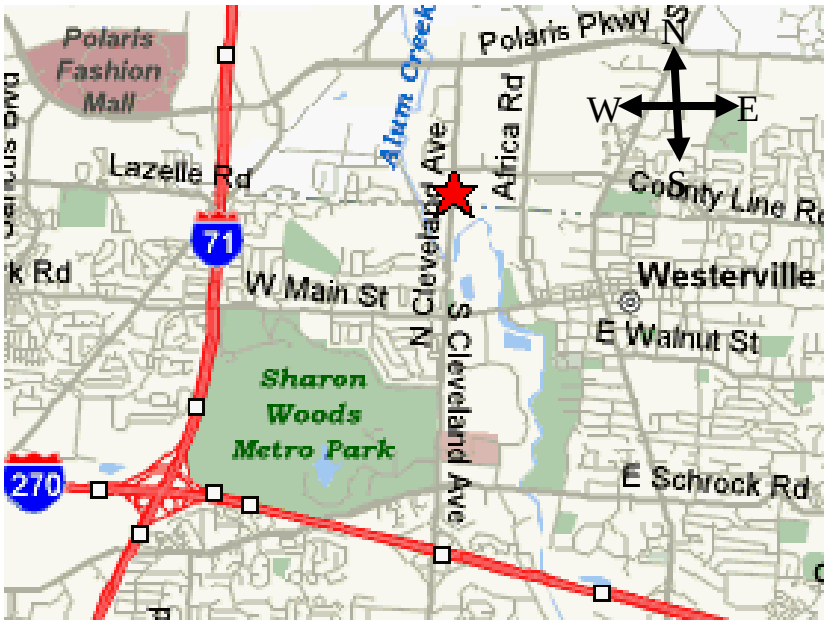
ART - WA8RMC 891-9273

LUNCH PROVIDED - DOOR PRIZES -

BRING A FRIEND AND SEE OLD BUDDIES

MINIHAMFEST - SHOW AND TELL

DIRECTIONS TO THE ATCO FALL 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 also listed in order in the ATCO homepage under "Newsletters". Once you locate the Newsletter section, the displayed list can then be re-sorted as needed by clicking on the "date" in the header.
…Bob N8OCQ

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
Vol 26 I	6	Isolator (Circulator) Modification 850 To 1260 MHz
Vol 26 II	5,6	Comtech 1200 MHz receive module improvements
Vol 26 III		No Articles
Vol 26 IIII	9	Remote Touch Tone Decoder For Your Shack
Vol 27 I	10	ATV Low Pass Filter (427 Mhz)
Vol 27 II	15	PictureTel Camera Data Cable Wiring
Vol 27 II	10	ATV Low Pass Filter (427 Mhz)
Vol 27 II	15	PictureTel Camera Data Cable Wiring
Vol 27 III		No articles

This is the complete list for construction articles shown in past ATCO newsletters. The page numbers listed may not match the actual page in the newsletter. They are the number shown in the PDF file. Some issues are missing. Art did not have a copy of every year. This list is complete through Vol 27 III.
…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. To see additional details for each Hamfest, Control Click on the blue title and the magic of the Internet will give you the details complete with a map!
…WA8RMC.

10/31/2010 | Massillon Amateur Radio Club
Location: Massillon, OH
Type: ARRL Hamfest
Sponsor: Massillon Amateur Radio Club
Website: http://www.marcradio.org

11/06/2010 | GARC Georgetown Hamfest
Location: Georgetown, OH
Type: ARRL Hamfest
Sponsor: Grant Amateur Radio Club
Website: http://www.garcohio.net

11/13/2010 | Indiana State Convention (Fort Wayne Hamfest & Computer Expo)
Location: Fort Wayne, IN
Type: ARRL Convention
Sponsor: Allen County Amateur Radio Technical Society
Website: http://www.fortwaynehamfest.com

11/27/2010 | Evansville Hamfest
Location: Evansville, IN
Type: ARRL Hamfest
Sponsor: Electronic Applications Radio Service (EARS) & The Ham Station
Website: http://w9ear.org/hamfest.htm

01/16/2011 | SCARF HAMFEST
Location: Nelsonville, OH
Type: ARRL Hamfest
Sponsor: None
Website: http://

01/30/2011 | Tusco ARC Hamfest
Location: Strasburg , OH
Type: ARRL Hamfest
Sponsor: Tusco Amateur Radio Club
Website: http://www.tuscoarc.org

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.

NONE THIS TIME.
…WA8RMC

INTERNET ATV HOME PAGES (list verified 10/08/09)

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://atn-tv.org/ATN.htm	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)
www.qsl.net/k7atv/	Salem, Oregon Amateur Television Associations-Salem
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
www.qsl.net/ww7ats	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://atv.hamradio.si	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.tv.	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.atvquarterly.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 (07/20/10)…….$1783.97
RECEIPTS(dues)……. $ 80.00
Paypal fee……$ (1.17)
Bank service fee reversal……$ 12.00
Flyers Pizza – pizza party food……$ (107.63)
CLOSING BALANCE (10/16/10)……..$ 1767.17

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, 1258 MHz FM mod, 1268 MHz QPSK digital, 2433 MHz FM mod, and 10.350 GHz FM mod. multipole filters in output line of all transmitters
Output Power - 427.25 MHz :50 watts average 100 watts sync tip
1258 MHz: 40 watts continuous (Analog ATV)
1268 MHz 10 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, 1258, 1268, 2433, 10.35 GHz transmitters video identify every 30 min. with ATCO & WR8ATV on 6 different screens.
1268 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
1258 MHz - Diamond vertically polarized 12 dBd gain omni (Analog ATV)
1268 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. (An input here generates an output on 147.48 and 446.350).
1280 MHz - F5 video input or DVB-S digital (digital input fed direct to 1268 MHz digital output channel 2)
2398 MHz - F5 video input
10.450 GHz - F5 video input (not installed yet)
Receive antennas: 147.48 MHz - Vert. polar. Diamond 6dBd dual band (also used for 446.350 MHz link output)
439.25 MHz - Horizontally polarized dual slot 7 dBd gain major lobe west
1280 MHz - Diamond vertically polarized 12 dBd gain omni
2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni (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 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#	unused at this time
C2* or C2#	C2* to disable digital transmitter, C2# to enable it.

ATCO MEMBERS AS OF October 18, 2010

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
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703		kc3am@verizon.net
W8ARE	Larry Meredith III	6070 Langton Circle	Westerville	OH	43082-8964		lcmeredith@prodigy.net
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	cmarkcring@gmail.com
N8CXI	Garry Cotter	2367 Northglen Drive	Columbus	OH	43224		gjcotter@aol.com
N9CX	Bill Erwin	231 Gateside Ct.	Gahanna	OH	43230		werwin@columbus.rr.com
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		mikect@verizon.net
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jabusic@yahoo.com
K8DMR	Ron Fredricks	8900 Stonepoint Ct	Jennison	MI	49428-8641		ron_fredricks@comcast.net
W8DMR	Bill Parker	2738 Florbunda Dr	Columbus	OH	43209		w8dmratv@copper.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
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
N8FRT	Tom Flanagan	1751 N Eastfield Dr.	Columbus	OH	43223		chuck78@wowway.com
WA8FLY	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	5560 Refugee Rd.	Baltimore	OH	43105	614-859-7005	kb8ghw@ee.net
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	614-203-6000	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
KD8JLO	David Nulter	510 Millag Drive	Sunbury	OH	43074	614-579-6425	davnul@wideopennetworks.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259	k8kdr@arrl.net
N9KNV	Edmund Janowski	1721 Minnesota Ave	South Milwaukee	WI	53172		ejanowski@wi.rr.com
W8KHW	Kevin Walsh		Columbus	OH	43220	614-442-7748	kwalsh@datrix.com
WA8KQQ	Dale Waymire		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	4300WinchesterSouthern 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
N0OBG	Jim Conley	33 Meadowbrook C C Est	Ballwin	MO	63011		jim@commo.com
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
KG4OPZ,KG4OQA	Dave &Mary Holtschneider	7 Akal Court	Durham	NC	27713		rotorheads@verizon.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	george@biundo.org
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PU	Gary Poland	3347 S.R. 28	Midland	OH	45148		gpoland1@cinci.rr.com
KC8QJR	Adam Burley	1796 Queensbridge Drive	Columbus	OH	43235	614-886-2326	adam@digitalcave.org
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	2895 Sunbury Rd	Galina	OH	43021		gkenmorris@gmail.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@ctcn.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	6706 Gilette Dr	Reynoldsburg	OH	43068	614-751-0029	w3sst@juno.com
WA6SVT	Mike Collis	PO Box 1594	Crestline	CA	92325		wa6svt@aol.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
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
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

Call	Name	Address	City	St	Zip	Phone	URL
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123		ohiomec@aol.com
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011		sdiggs1@insight.rr.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	n8yz@amsat.org
N8ZM	Tom Holmes	1055 Wilderness Bluff	Tipp City	OH	45371		tholmes@woh.rr.com
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	ttaft181@att.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.

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 and fill out the “pay dues” section. Alternately, you can use the ATCO web site www.atco.tv/PayDues.aspx directly. 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.