ATCO NEWSLETTER

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ATCO HAM IN THE SPOTLIGHT

This time we visit Dave Mathews, WD8MDI. Dave’s professional work involves broadcast engineering so it’s understandable that he has just jumped into this hobby with both feet and come up floating very well.

Dave has accomplished quite a bit in his short time as an ATVer. Due to the fact that his home is in a restricted community, his outside antenna work is limited so he had to resort to some creativity. Window and “stealth antennas are his specialty. I understand that a flagpole antenna is in the works. We wish him well in his quest toward the perfect ATV station.

ACTIVITIES ... from my "workbench"

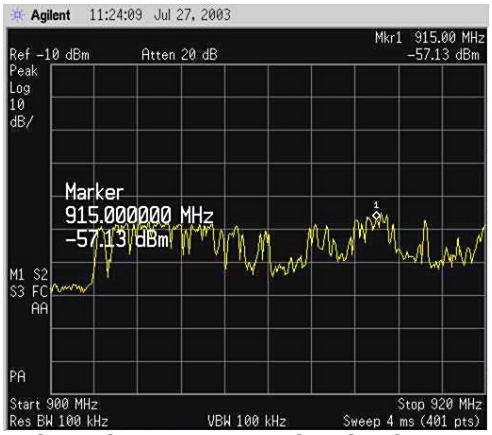
OK, this year is going way too fast for me. I seems I can't keep up with, not only the ATV stuff, but all other items too. Sometimes it seems, I just would rather relax and do nothing after work but a lot of that is not good so it's important to keep going. I think I see the light at the end of the tunnel and, this time, I don't think it's another train.

First though, I must apologize for the lateness of the Newsletter this time. Too many things required attention at the same time plus right in the middle of all that, I had to travel out of the country for a week. It was ONLY a week but it seems I lost about 3 weeks of progress. After that, my computer crashed and required immediate attention (obviously) before I could continue this Newsletter. The computer is OK now and a new one is on order but first, "finish the Newsletter".

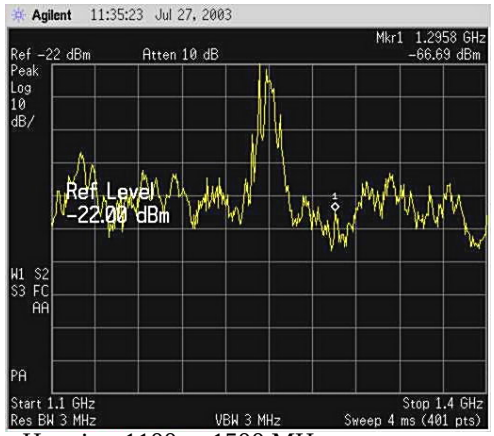
The repeater has been running OK now for quite some time. Yes, I have made a few trips down there (or is it up?) but nothing serious. One time I re-installed the repaired 900 MHz receiver and re-adjusted the 427 MHz transmitter. The sync was being severely compressed so there is no doubt that many were not seeing it very good. It's reported to be better by as much as 1 P unit now. Another trip was to change the 2.4 GHz receive filter and the last time was spent correcting an intermittent connector on the 1280 MHz receiver.

The 2.4 GHz input *SHOULD* be a little better now. I re-tuned the input filter to offset the bandpass and help reject the adjacent wireless Ethernet "trash" just above us in the frequency domain. The 2.4 GHz band limits are 2390 to 2450 MHz. The Wireless Ethernet pulses start abruptly at 2402 and continue solid to 2450. Therefore with our input center frequency of 2398 ±6 MHz, the high side of the signal extends to 2404 and right into the Ethernet pulses. In an attempt to filter the Ethernet out, I adjusted the filter to start the rolloff at 2400 and about 20 dB down at 2402. This MAY affect our ATV reception but we'll have to wait and see. I'm told that an unsymmetrical video passband will not be noticed but audio, if used, may suffer. Let me know about any experiences you have with this band.

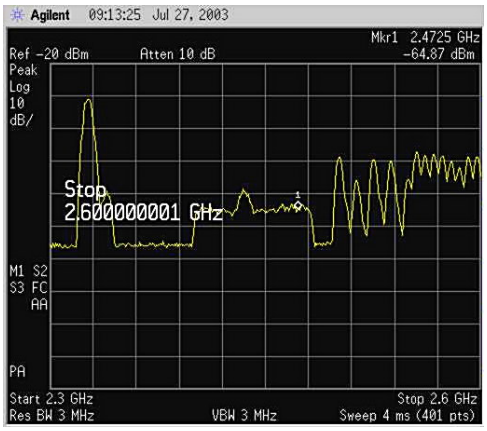
While I was at the repeater and had the borrowed spectrum analyzer with me, I took the opportunity to check the various band segments that we receive signals. I did this once before to find out just how much trash had to be filtered out and wondered if it had changed. The results shown below indicate that the levels remain approximately as they were about 3 years ago. The levels are maximum values over about 5 minutes.



This is the 902-920 MHz ham band. We receive the radar signal at 915 MHz where the #1 marker is located. There is other noise there but it's not as bad as I had first thought. Notice the lower band edge noise floor of –80 dBm <u>BELOW</u> 902 MHz .



Here is a 1100 to 1500 MHz segment (the ham band is 1240 to 1300MHz.) The repeater output is ON and shown in the center peaking at –22 dBm at the receiver input. This band is relatively quiet with a noise floor of about –80 dBm also. The marker shown is at –66 dBm.



This is 2300 MHz to 2600 MHz. (the ham band is 2390 to 2450). Notice the unknown STRONG signal at about 2330 MHz. Also, the noise level jumps up from 2402 to 2450 because of wireless Ethernet. MMDS TV signals start at 2521 MHz. The small blip at mid screen (2433) is the repeater output.

I'm still working on the 10 GHz repeater output controls but among the other things, work is slower than I'd like it to be. I'm hoping to have something flying by mid August so stay tuned. I'd really like to try this new band and hope it will prove to be a lot of fun. I now have a new 10Ghz dish ready to mount and an extra one from W8RUT if anyone needs it.

Last but not least, the Columbus to Dayton link is taking shape at the Dayton end. Dick, W8RVH, has constructed a 10 watt 915 MHz transmitter for their side and has a receiver operational. I need to at least complete a transmitter for the South Vienna site so we can conduct some range tests. I'm very confident that 10 watts on 915 MHz will be more than enough to maintain P5 signals over the 40 mile line of sight path.
…WA8RMC

AN ATVer FROM GRAND RAPIDS SPEAKS OUT

Bill Parker has been talking to Ron Fredricks, xxxxx, from Grand Rapids, Ohio who has the following to say:

Bill, everything is fine with ATV in Grand Rapids.
Incidentally our 421.25 600 watt ERP output gave us some 3rd harmonic receive problems up on 23 cm even though we use 1290 for our 23 cm input and 3rd harmonic of 421.25 is 1263.75 MHz. Rolled our own 3rd harmonic trap on 70 cm xmtr using a type N Tee and a type N barrel connector (tried several as the lengths vary until I get best results). Also found that the little plumbers delight 70 cm FM trap described in ATVQ several years ago also traps 1263.25 when put in 23 cm RX line. Together the two eliminated our 3 rd harmonic overload problem and 23 cm reception is interference free even though all antennas are on the same tower and close together.
… Ron

"COLUMBUS HAMVENTION"? …Vendors recommend alternate sites

Most big Hamvention inside exhibitors have indicated they'd prefer the world's largest annual ham radio gathering to be held in Columbus, Ohio, if Dayton's Hara Arena were no longer available. This is the last year of Hamvention's five-year contract with Hara Arena. Event organizers have begun preliminary talks with Hara's owners for a new pact, but say they want to keep all options open. Hamvention takes place May 16-18, and the show's Production Manager Garry Matthews, KB8GOL, says Hamvention 2003's fortunes have begun moving in a more positive direction in recent days.

"I think it's going to be a good year," predicted Matthews, who said he's seen a dramatic increase in interest over the past week. "I think the show may be slightly smaller this year in terms of inside exhibitors and outside vendors," Matthews conceded, "but if activity continues as it has since Monday of this week, we possibly could sell out the show. We're getting orders every day."

Earlier this spring, Matthews reported that things had been slower to come together in terms of advance sales to visitors and vendors. He said organizers have been beefing up direct mail and other Hamvention promotional activities over the past couple of weeks, however, and results have been encouraging.

One popular Hamvention staple--the FCC forum--will be missing this year. Because of some miscommunication and scheduling problems, neither Bill Cross of the FCC's Wireless Telecommunications Bureau nor Riley Hollingsworth of the FCC's Enforcement Bureau will attend Dayton Hamvention this year. Last-minute efforts to find suitable substitutes for Cross and Hollingsworth did not pan out, and the forum's two-hour Saturday morning time slot remains unfilled.

Matthews and FCC sources have indicated that tentative plans are in place to schedule an FCC symposium at Hamvention 2004 featuring Cross, Hollingsworth and FCC High-Frequency Direction Finding Facility Manager Dave Larrabee.

Matthews said that while it was unlikely Hamvention would be moving to Columbus--some 60 miles from Dayton--any time soon, it remained "a very strong contingency" if Hamvention ever did have to move elsewhere. "Our option with Hamvention would be to stay at Hara for as long as we possibly could, as long as we could make it work and the show could be a good show," he said. Hamvention is sponsored by the Dayton Amateur Radio Association, but Hamvention has quietly dropped "Dayton" from the show's official name.

Hamvention's preference survey went to 225 of the largest inside exhibitors, and Matthews said 80 percent of those indicating a preference picked Columbus as their top choice as an alternative site, while 12 percent said "no" to Columbus. Matthews said the Columbus Fairgrounds appears to be a suitable site were Hamvention to ever consider relocating. The other two preferences were Indianapolis and Cincinnati respectively.

Matthews said Hamvention officials this year plan to survey a selection of "average hams" during the show itself. Attendance at last year's 50th anniversary event was 24,832--down about 5 percent from 2001's crowd of 26,151.

Late news about the show is on the Hamvention Web site
<http://www.hamvention.org>

SATELLITE BROADCASTER GETS READY FOR MOBILE PLAY

Tokyo - Targeting a service launch in the spring of 2004, Mobile Broadcasting Corp. has developed a second-generation chip set and a compact prototype mobile video receiver capable of picking up S-band audio, video and data from a satellite.

The company, known as Mbco, is expected to be granted a license from the Japanese government in the next month or so as virtually the sole broadcaster focusing on mobile reception in Japan. The company ordered a satellite from Space Systems/Loral Inc. in August 2001 and plans to launch it in October.

Power consumption of the six-chip set-built in a 130-nanometer process by Toshiba Corp., one of Mbco's founders-is 2 watts. When the chips are paired with the prototype receiver, the figure rises to 4 W. That level will restrict the Mbco system, at least initially, to relatively large consumer electronics boxes such as portable TVs, PDAs and cars. "For a mo-bile-phone implementation, we need to integrate these chips and lower the power consumption," said Masashi Suenaga, vice president of Mbco. For cell phones, the goal is to merge the six devices into one using 90-nm processes sometime in 2005 or later.

"In Korea, TV broadcasting to mobile phones has already started," Suenaga said. "But TV reception through a mobile-phone network costs a lot. Once our LSI chip set is implemented in a mobile terminal, users can receive broadcasting at a low flat rate as a receiving fee."

The distribution of audio, video and data to mobile systems is a potentially big market for existing TV broadcasters, mobile-phone carriers and other operators like wireless-LAN providers. Mbco intends to take the lead in preparing the infrastructure to make that happen.

Founded in 1998 by Toshiba and several other companies, Mbco's original mission was to broadcast video content based on MPEG-4 technology. Toshiba owns a 38 percent share of its capital of about $222 million, and South Korea's SK Telecom is the second largest shareholder. Toyota, NTT Data and Nippon Television are also listed as large shareholders among the 63 investors.

Mbco's broadcasting system consists of one satellite and so-called "gap fillers" that are designed to fill the radio wave gaps in places like tunnels and behind buildings, where the 2.6-GHz short waves cannot reach. "Gap fillers are less expensive than launching another satellite to cover those gaps," said Suenaga. Mbco is now actively installing gap fillers in Japan, starting in metropolitan areas.

The Japanese firm intends to deploy its broadcasting system, which receives signals without a parabolic antenna, by 2004. Suenaga said that in field trials, the Mbco prototype receiver, which has a built-in antenna, succeeded in receiving signals on the bullet train running at 167 miles an hour. The broadcasting system, which has a data rate of more than 7 Mbits/second, uses MPEG-2 for baseband multiplexing, MPEG-2 AAC for audio coding and MPEG-4 Visual for video coding.

The company expects to complete construction of its uplink station by June. The station sends a time-division multiplexed (TDM) signal in the Ku band to the satellite. The satellite converts this to a code-division multiplexed (CDM) signal in the 2.6-GHz S-band frequency, amplifies that signal and sends it to the ground for direct broadcasting.

In parallel, the satellite relays the Ku-band TDM signal to each of the gap fillers. They in turn convert the signal to CDM for delivery to each mobile receiver within the gap filler's coverage area.

Mbco's six-chip set forms the receiver's core. One device handles CDM and forward error correction, another handles conditional access and a third is the decoder. Orthogonal detection uses two ICs. The sixth chip is a twin phase-locked loop, which is used for the RF tuner.

The CDM/FEC chip demodulates the mobile-broadcasting signal, preventing interference of the same-frequency signals from the satellite and gap fillers.

HAMVENTION 2003 – ATCO STYLE

Again we participated in the great fun of the Dayton Hamvention as ATCO was there in full strength. The weather dampened the activities on Saturday but Friday was great! This year we had the services of KC8LZC's super trailer. It was especially valuable on Saturday where it provided a shelter from the rain. The picture on the left below shows the trailer interior space aided by the metal shelves for the equipment. The center photo shows us open for business.

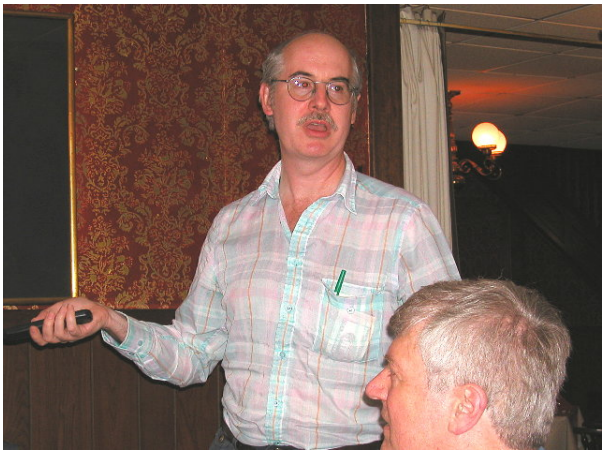
The Friday night gathering was again hosted by the ATNA ATV group during a dinner in Dayton at the Stockyard restaurant. The speaker material was great and all had a great time but the setting was a bit small for the crowd. In addition, it was a little inconvenient holding discussions while they were serving dinner. There were about 50 attendees and as it turned out, was well worth the inconvenience. The pictures below capture some of the participants at their best.

On the left is Dick, W8RVH, then Jessie, KB8OFF and Hank waiting to be served dinner.

On the right is Giles, G1MFG describing his ATV modules for sale. (Where did he get that shirt)? It matches the wallpaper.

On the left is Gene, WB9MMM, editor of ATVQ magazine.

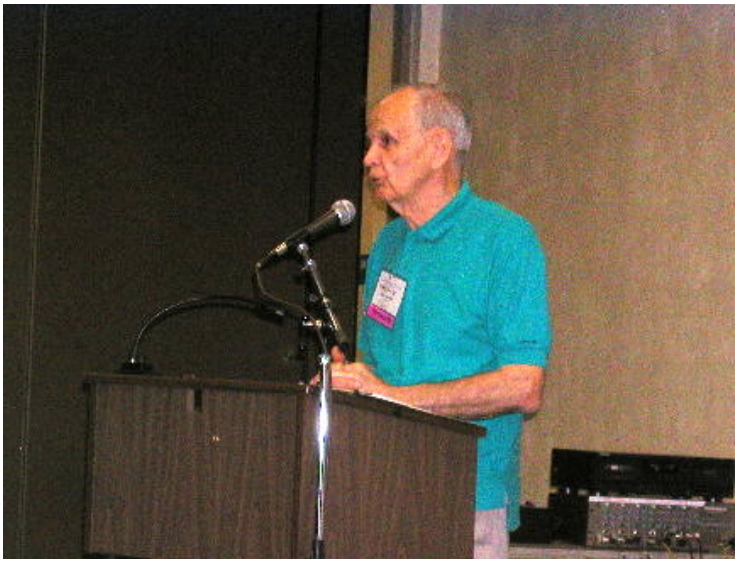
On the right is Bill, WB8ELK, talking about his balloon launches.



HAMVENTION 2003 SATURDAY ATV FORUM

Again we are dazzled by the wit of Bill Parker, W8DMR, as he MC's the Saturday ATV forum at the Hamvention this year. Bill, if my count is correct, it's your fourth year, right? I finally figured out why he puts up with all of us. I think it has to do with the free Hamvention ticket doesn't it Bill?

As usual he kept the show going as he introduced the excellent speakers. The pictures below show only a portion of the great knowledge shared by all.



Above is Gene Harlan, WB9MMM talking about ATVQ and assorted subjects.

On the top right is Mike, WA6SVT, talking about ATV repeater linking in the California area. Mike is responsible for the correct operation of much of the ATV networks in the California area and was very instrumental in the wildfire containment effort in that area lately. He is also working on a digital ATV design.

And, again we see Giles, G1MFG, talking about the ATV operations in Europe. Oh yes, he DID put in a plug for his ATV modules for sale on the internet.

Finally, Bill asked me to talk a little about the ATCO system we have. No picture is available because…you guessed it, I had the camera and didn't want to break it.
…WA8RMC

NOW FOR SOME HUMOR…
How to spot an ATVer without really trying by W8DMR

Q: Why does a radio amateur become an ATVer?
A: Looking into a mirror, he keeps seeing the same picture.
Q: How can you tell an ATVer?
A: When talking to you, he looks for the video camera.
Q: Why did the ATVer cross the road?
A: To get a better picture with less snow in it.
Q: How do you drive an ATVer nuts?
A: Tell him the ATV repeater is stuck in the ID mode.
Q: How can you tell if an ATV antenna is too small?
A: If it stays on the tower after a big storm.

You might be an ATVer if:

- You can't decide whether to buy wife anniversary flowers or install new hardline on ATV antenna.
- You go on a cruise, and take a small personal TV set to monitor ATV band conditions.
- The salespeople at the local electronic store can't answer questions about CATV Channels 58 thru 60.
- Watching TV, you try to figure how the special effects are done.
- For your wife's birthday, suggest a new computer video card.
- You ask your wife to watch ATV video on Net night.
- You sit backwards on Disney rides to watch the video effects.
- You save the power cord from every broken appliance.
- You have more friends on ATV than in real life.
- You think "fading-to-black" means becoming a silent key.
- You look forward to Christmas to play the kid's video games.
- You spot a good video circuit and have to change it immediately.
- You spent more on your video camera than the wife's wedding ring.
- You still own a B&W TV set and brag about it.
- People yawn when you talk about strong ATV signals.
- You smile when window-shopping at Radio Shack.
- ATV equipment is worth more than your car.
- Your wife hasn't the foggiest idea what vertical-roll means.
- You calculated 10 times on how to save 1/10 of a dB loss.
- You've repaired a $5 TV receiver by spending $100 more.
- You take the ATCO Newsletter to the bathroom.

(David Letterman, eat your heart out!!!)
…W8DMR

ARIZONA ATV REPEATER IN FOREST FIRE TAKES A "HIT"

The repeater site where the ATV repeater was located caught fire in the ceiling (the building walls were block). The site owner said most of the equipment melted or burned up inside. The tower has major structural damage, feed lines melted and antennas are probably burnt up. So far we have not been allowed up to see if any of the equipment like the filters that were in a steel equipment closed rack are salvageable. In my opinion, if we are to have an ATV repeater back in operation, the collection hat needs to be passed around. I have the main 434 receiver in my shop for upgrades and the voice repeater was getting a link receiver added and it was not on the Mountain during the fire. We may need to raise about $1500 to get back in operation. What does the group want to do?
…Mike WA6SVT

K7RST HAM TV Repeater on Mt Lemmon
I have just seen a picture of what's left of the ATV repeater on Mt Lemmon - as you might expect, nothing. Luckily some parts were off the mountain so all is not a total loss. The Amateur Television Network guru, WA6SVT in California tells us that it will take about 1500 bux to get it rebuilt. If you would like to see a new ATV repeater arise from the ashes – like the Phoenix bird - I'm sure that he would gratefully accept any donations to the cause. I will donate the last 100 bucks because I have too much money tied up in 1.2 GHz receiving equipment to see it all go for naught.

Another ham has pledged 40 bucks - like PBS, he says.
…Bil W7WKM HAM TV Tucson AZ

BUILD AN ATV LINE SAMPLER...

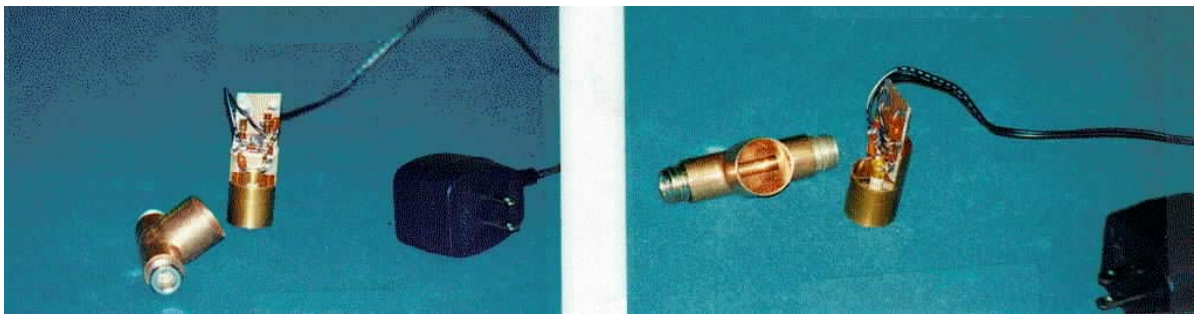
Here is an article I did and published in the April 1995 ATCO Newsletter. Based upon the video quality comments on the air lately, I decided that it is time for it to return. Most of us really have no idea how the ATV signal looks on the air short of comments by fellow ATVers (and we all know how accurate that can be) or looking at your signal through the repeater on another band. Since many of us can't look at the repeater output while transmitting, there is no easy way to monitor your own signal…or is there! No, it's not reliable to look at the "sample" output from your transmitter, if you have one as many PC Electronics units do. That is only an RF sample coupled to the transmitter last RF stage. A high SWR will totally invalidate that reading. So, I feel the only way to check the signal quality is with an RF sampler ***in the transmission line****. Build the item below and it can be done. If you need help with the parts, I will round them up for you. So, there is no excuse. Once calibrated, it's an accurate wattmeter too! I can help with that one also if needed. WA8RMC.*

OK guys...here it is! I guarantee that this item will be the most important piece of equipment in your hamshack -second only to your camera, transmitter and receiver! If you want to really know what kind of signal your transmitter is producing without relying on reports, then you need this one. I've been preaching for years that an "on-the-air" signal can **NOT** be monitored reliability by viewing it on a companion receiver because there are too many variables: resolution limitations of the receiver, ghost pickup by reflections and most important the reliability of your buddy watching it and trying to make you feel better by giving a good report. Put aside that antenna project and tackle this one first.

Circuit description:
The line sampler extracts a small portion of the RF signal in the transmission line via the probe. It then rectifies it in the 1N23 diode and amplifies it in the op amp for display on an oscilloscope. The input 10K resistor forms a current load for the diode while the 2.2k resistor at pin 3 isolates the diode from the op amp. The 2.2k resistor (pin 6 to 2) along with the 100 ohm resistor sets the op amp gain of 23 (2200+100/100). The resultant signal at pin 6 can drive about 5 volts into a 1000 ohm load. The output signal here is determined by the probe loop proximity to the transmission line. The closer the pickup the larger the output. Sufficient gain is available to produce above 2 volts at the output, probe closest to the line and as little as 5 watts of RF. If that can't be obtained, try another diode...there is a large variation in sensitivity between a 1N23(poorest) and a 1N21WE(best). The circuit is DC coupled so a CW carrier can be read as well as the AC video components.

The variable gain AC coupled post amplifier can be connected to a video monitor. Not shown but definitely possible is the inclusion of a small DC millivoltmeter connected to the scope point calibrated in "average" watts. Calibration is done by sliding the tube into the "T". When calibrated, solder it in place. It's important to have a device like this because you can adjust the transmitter and see directly the affect even though it may not be evident in the actual picture. I've calibrated my scope with the aid of a Bird wattmeter in the line with the sampler and an CW RF carrier. I read the Bird and marked the corresponding negative going voltage on the scope corresponding to power. Voila! I've now got a peak reading oscilloscope wattmeter.

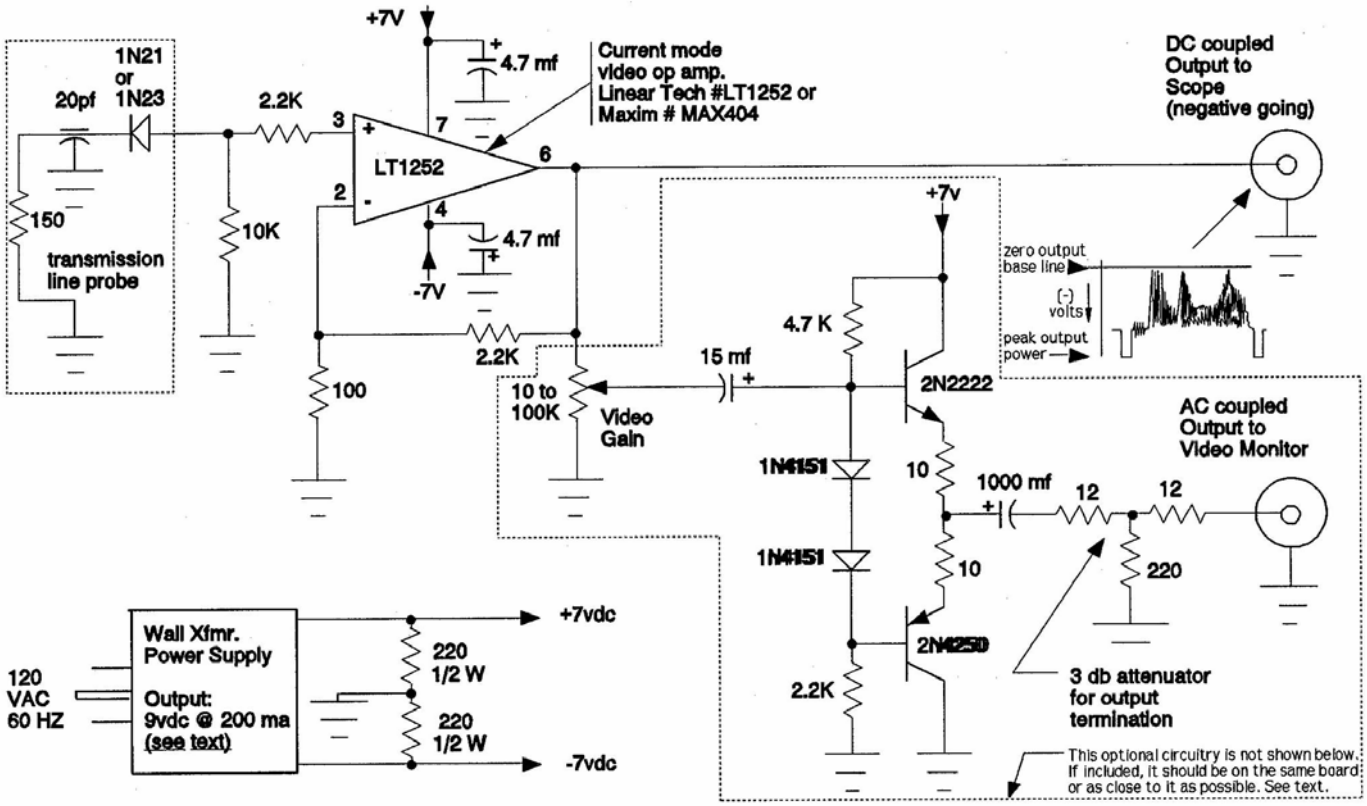
There are two basic parts to this sampler - the probe and the amplifier. If you own or know where to get a Jones Micromatch type of coupler, then you only need the amplifier section. The coupler is readily available at hamfests for about $6 to $15. It comes as either a single or double unit and under various names. If a Micromatch type coupler is used, the bypass capacitor in the plug must be removed. Then a standard single contact microphone plug is best substituted for the original. The amplifier must be located within a couple of inches of the plug and kept well shielded. If you can't find a Micromatch, then my tube probe is just as good.



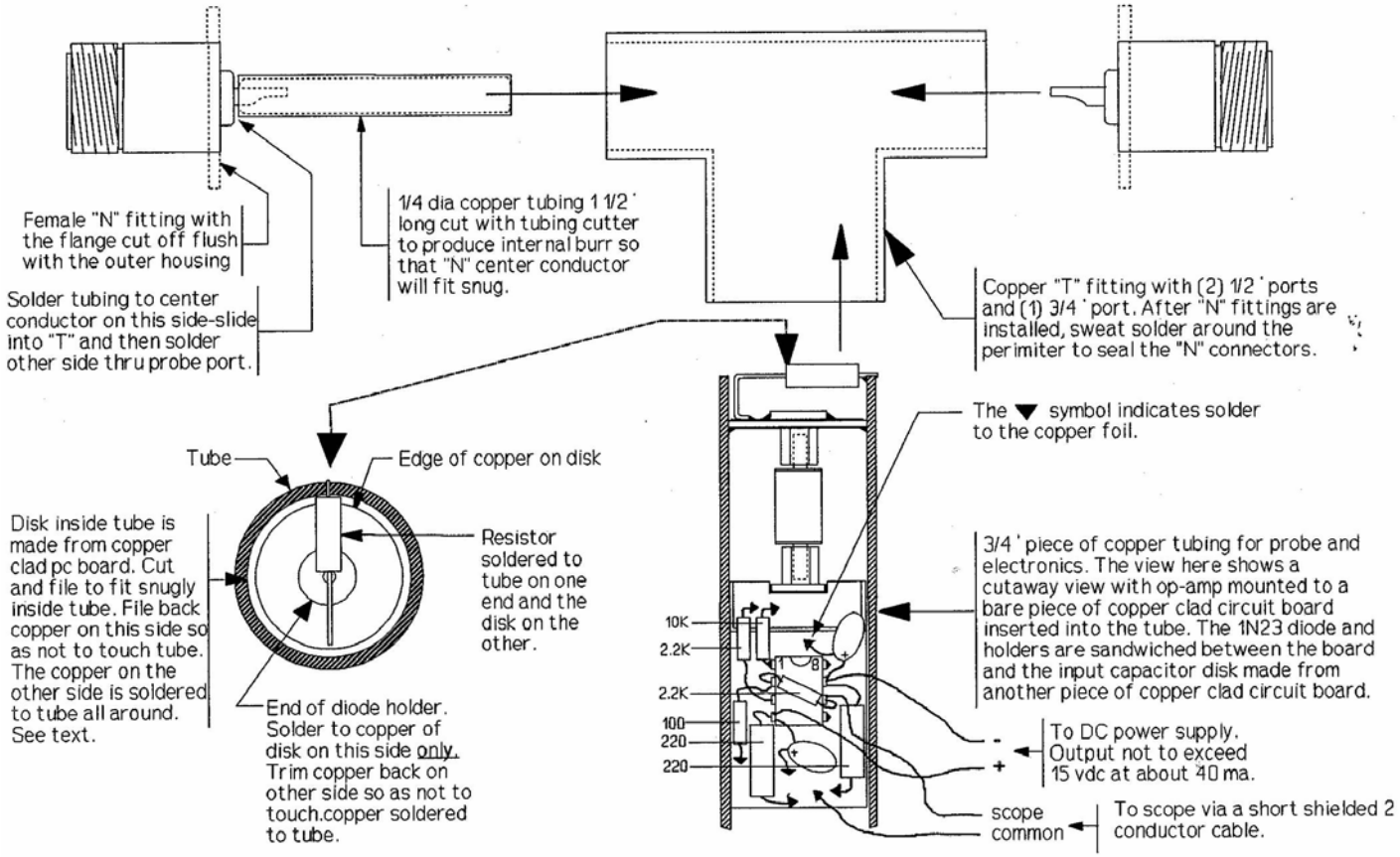
Items needed:
1. Copper "T" fitting with (2) 1/2" and (1) 3/4" outlets. No modifications required here.
2. (2) "N" female fittings modified by cutting or filing off flanges flush with body.
3. Cut a 1½" piece of ¼" copper tubing with a tubing cutter so as to leave an internal burr.
4. 1½" to 2" piece of ¾" copper tubing to use as a probe and amplifier housing.
5. 13/16" x 1½" piece of blank copper clad glass epoxy pc board material.
6. Cut a 13/16" disk of pc board material so it fits snugly inside of the ¾" copper tube. Drill a ¼" hole in the center for diode holder. Trim or file off approx 1/16" of copper all around perimeter of disk on one side only and trim about 1/32" around the ¼" hole on the side opposite the perimeter trimmed edge..
7. (1) 1N21 or 1N23 diode with removable end caps. These are common on diodes of this type but not all. Check to make sure you get one that the ends pull off (used to reverse the diode polarity).
8. Op amp. Use Linear Technology # LT1252 or Maxim # MAX404. These are inexpensive current mode video amplifiers but not too common. DigiKey Corp (1-800-344-4539) has the Linear Tech part for $2.94 ea. If necessary, I could order from the manufacturer if enough people want them. Let me know.
8. Misc. resistors and capacitors common variety as shown on schematic.
9. Power supply. Mine is rated 9vdc @ 300 ma. Other supplies with 10-15 vdc output @ 40 ma are suitable.

WA8RMC VIDEO SAMPLER

Schematic



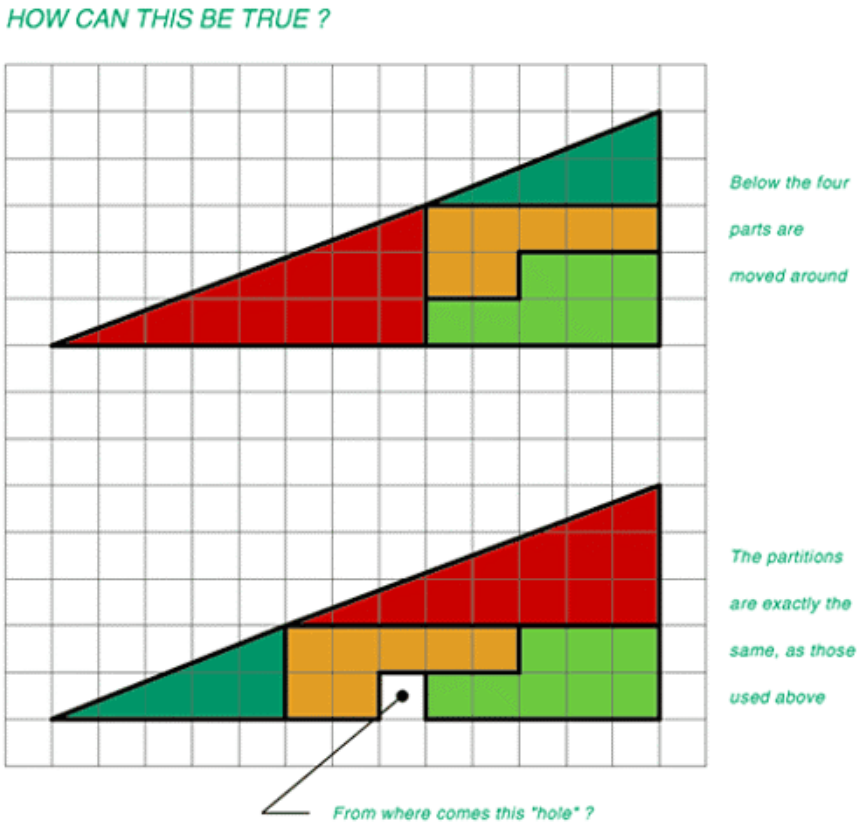
Probe comstruction



Assembly notes:
Place disk ¼" inside tube with the trimmed edge out. To aid soldering, place 4 pennies in a stack on the table and place tube with disk over them. Press the disk tight against pennies to make sure it is centered. Then with a propane torch gently heat the tube and apply solder to the opposite side of the disk periphery to solder it to the tube. Insert the diode holder into the center hole in the disk and solder on the outside only. This forms a 20 pf capacitor. Next install the 150 ohm ½" watt resistor across the end of the tube and solder one end to the tube and the other end (bent at right angle) to the isolated part of the disk. Now build the op amp circuitry as shown in the detail. Solder the other diode holder to the end of the pcb but first make sure the diode will line up with the 2 holders before soldering. Make a copper cut across the pcb to isolate the holder from ground. Only the 2 resistors will connect here. When the board and wiring is complete, slide it into the tube and solder the pcb copper to the tube at the end to complete the job. Happy building. If you have trouble, I'll be glad to help.
...WA8RMC

W8DMR RESPONDS TO "TWIST YOUR NOODLE" BRAIN TEASER

Well, this puzzle in the last issue did stir some controversy. Did you loose sleep over it? Possibly, W8DMR did till he was able to figure it out. To reward Bill for his efforts, I present his solutions here so now you'll know "the rest of the story". I don't even think the puzzle author analyzed it this far. Here's the original puzzle:



Bill responds with these answers:

Method #1
The smaller triangle occupies 1/2 the area of a 2 by 5 rectangle, or 5 square area units. The larger triangle occupies 1/2 the area of a 3 by 8 rectangle, or 12 square area units.

The composite rectangle occupies the area of a 5 by 3 rectangle, or 15 square area units.

The total area occupied by the two triangles and the rectangle is 5 + 12 + 15 or 32 square units.

BUT, 1/2 half of the area of a rectangle 5 by 13 equals 65, or 32.5 square area units for a TRUE triangle. Since 32 does not equal 32.5, the triangle is suspect.

This proves mathematically the partitioned sections are NOT forming a true, three-sided triangle. The hypotenuse of the overall "triangle" is not a single straight line.

An accumulation of area due to the "four" sided pseudo triangle must be the cause of the extra square.

An additional observation: The total of the square units including the magic square becomes 5 + 12 + 15 +1 or a total of 33 square units. This leads one to believe the upper "triangle" has a 1/2 square unit area accumulation, while the bottom "triangle" has a 1/2 square unit area accumulation also. (32.5-32 =1/2 and 33-32.5 =1/2)

The two approximate "halves" can account for the one square of extra area of the puzzle, thus having created one-heck of an optical illusion. Thus proving one cannot always trust what the eye sees on a first casual glance.

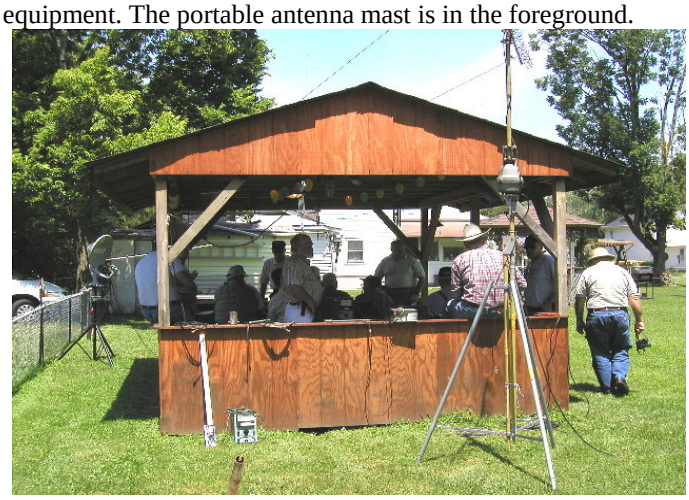
Method No. 2
Solve for the hypotenuse of the smallest triangle, 2 x 5,which is 5.3851648 then solve for the hypotenuse of the mid size triangle, 3 x 8,which is 9.4339811. Adding the above, totals 14.8191459, the sum of the hypotenuses of the two internal triangles. Now, solve for the hypotenuse of the overall triangle, 5 x 13, which is 13.928388. This proves without doubt, the smaller triangles are NOT congruent with the overall triangle. Hence, an area discrepancy.

Method No.3
Excluding the 90 degree angle, if a comparable angle of the three triangles is calculated, again non-congruency is proven. The angle of the smallest triangle = 21.80141 Deg. The angle of the mid size triangle = 20.55605 Deg. & the angle of the overall triangle = 21.03751 Deg. The angle of the smallest triangle is larger the correct overall angle, while the angle of the mid-size triangle is smaller than the correct overall angle, and reason for the area discrepancy. If the three triangles had been congruent, the degrees contained in each comparable angle would have been the same and equal.
…Bill Parker, W8DMR
Bill, you have way too much spare time on your hands!!!
…WA8RMC

ANTENNA PARTY 2003… A great way to spend a Sunday afternoon

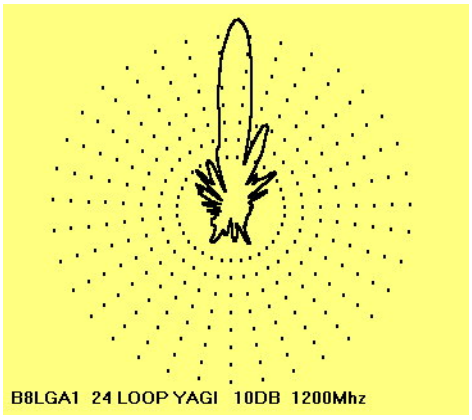
Another year has gone by and it's again time to check the antennas. On Sunday July 20 we did just that in Ted's back yard. (Thanks Ted for your hospitality). It was a perfect day, not too hot and not too cold…just right! The antenna measurements went a little better this year because Chuck, WB8LGA, brought his own version of the antenna plotting program. It worked well but my (reliable) Boonton RF voltmeter decided it was time for a rest and refused to operate properly. Ted to the rescue for he had a substitute that worked acceptably. During the measurements and other discussions, we had pizza and pop paid for from our treasury. We had a blast!

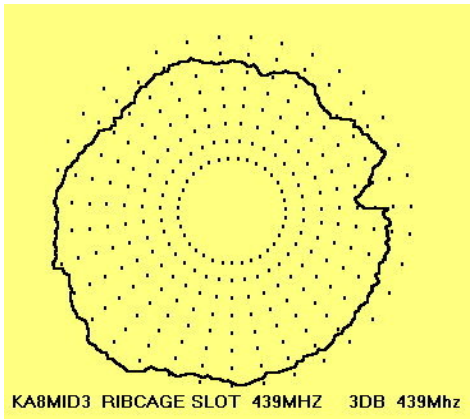
Not too much to see here from a "people" standpoint but Ted's open air shelter provided the perfect place to house equipment. The portable antenna mast is in the foreground.

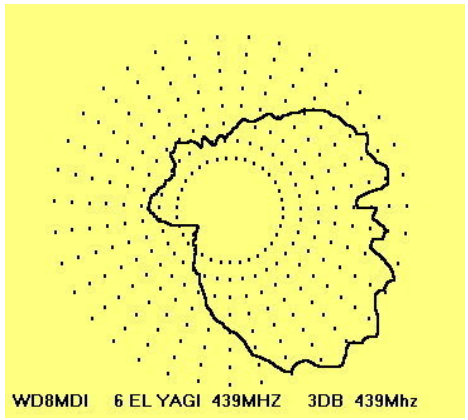


I caught Bill, W8DMR, making a quick trip to Ted's hamshack to make adjustments. (he'll be right back)!

Here are a few of the antenna plots we made. WB8LGA's yagi on the left looks pretty good. WD8MDI's 6 element yagi in the center needs some work but that's what it's all about, find out if it works. Finally, KA8MID's ribcage omni antenna could show promise with a little more tuning. The 3 dB gain is a starting point. It should end up at around 6 dB.

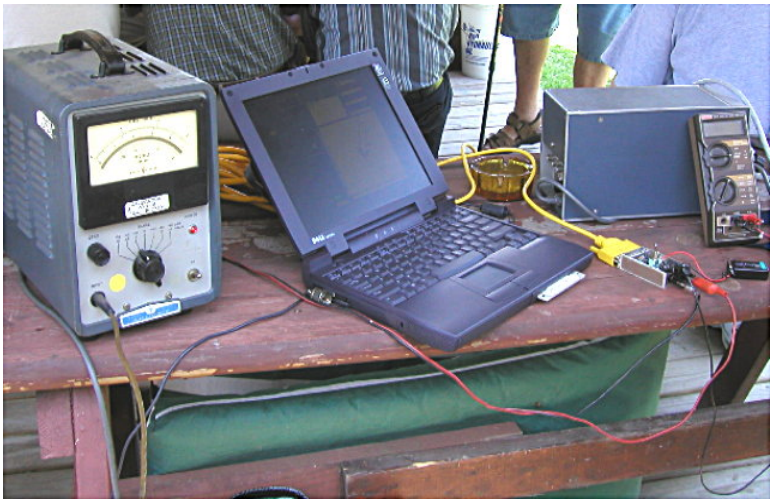






Below is a glimpse of our measuring equipment. It's crude but effective. We didn't measure this one but Ken, W8RUT, demonstrated his 10 GHz setup. It was quite impressive. Between he and Bill, W8DMR, they figured out how to properly offset feed the "Direct TV" dish. All transmitter parts mount to the dish.

Chuck's lap top contained the whole program. Ted's RF voltmeter connected to the test antenna, provided the voltage to feed to the A to D converter at center right (connected via clip leads).



HERE'S OUR "OFFICIAL" ATCO VEHICLE…(it sleeps in Ken's garage)

Ken, W8RUT, brought his recently purchased SUV *exclusively* filled with ATV gear. It kind of puts a new meaning to an ATV vehicle, doesn't it? It's hard to see the antennas on the roof but he has one for each ATV band (No, nothing for 10 GHz yet, but he's working on it) He is waiting for me to complete the 10 GHz repeater output first. Notice that he even has the repeater call sign on his license plate.

When he wasn't looking, I peeked inside and found some low band (DC) stuff in there too. He has a motorized rear mount antenna to be able to cover all of those "DC" bands. So, it isn't TOTALLY an ATV vehicle.

HAMS GET PRIMARY PRIVELEGES ON THE 2400 MHz BAND

The FCC did agree in a Report and Order released May 14 to elevate the Amateur Service, but not the Amateur-Satellite Service, to primary status at 2400 to 2402 MHz. The changes to Part 97 go into effect 30 days after publication in The Federal Register, which has not yet happened.

Sumner said the ARRL was pleased to see 2400-2402 MHz upgraded to primary. "The upgrade of the 2400-2402 MHz amateur allocation to primary provides a seamless primary allocation from 2390 to 2417 MHz, in addition to the secondary allocations of 2300-2310 and 2417-2450 MHz," he said. Amateurs already have been experimenting with high-speed multimedia operation in the band using IEEE 802.11b protocols.
ARRL Bulletin 35 ARLB035 May 14, 2003.
The Report and Order is available on the FCC's Web site,
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-105A1.doc.

HAMS SEND VIDEO TO SPACE SHUTTLE

History was made in April of 1991 when several individual hams and ARC's sent FSTV to the Space Shuttle Atlantis on STS-37.

Here were the calls and their owners:
Jim Steffen, KC6A 15KW ERP video, 1.5 KW ERP audio, Long Beach CA.
Andy Bachler, N9AB whose idea it was, Motorola ARC, Schaumburg IL.
Marshall Space Flight Center ARC, WA4NZD, Huntsville AL, 30,000 WATTS ERP!!!
Johnson Space Flight Center ARC, W5RRR, Houston TX [which might have been the Goldwater SFC in Paradise Valley - oh well).
Goddard Space Flight Center, WA3NAN, Greenbelt MD (using the 40-foot dish at the USN Academy.
Kai Sewiak, KE4PT from the Motorola Club in Ft Lauderdale FL.

All of them were operating under an STA since the audio and video were outside the satellite band. In addition KC6A also had to get a waiver from the local FCC office for higher power and ERP than allowed in Part 97.

One individual transmitted a video of the launch. Each of the ARC's sent live video with themselves waving seated in front of giant signs with the club's call letters, organizations and locations.

In addition the JSC ARC went into the control room and sent up live pictures of the CAPCOM while he was on duty.

All signals were recorded on video tape and, at one time, copies were available for sale.
SAREX STV - Apr 1991
…Bil Munsil" w7wkm@cs.com

HAMVENTION REPORTS ATTENDANCE DOWN IN 2003

Hamvention reported June 4 that attendance for this year's 52nd show was 22,168, down a bit more than 10 percent from last year's crowd. "This is based on the number of admission tickets issued and exhibitor and staff badges issued," said a statement from the office of Hamvention Production Manager Garry Matthews, KB8GOL. Matthews told ARRL that weather played a big factor in attendance.

"Our biggest contributing factor to the drop was the near-constant rain on Saturday," he said. "We had a whole day washed out." On the plus side, Matthews said, Hamvention 2003 came close to selling out vendor spaces, and many vendors reported that they had a good year, despite the smaller crowd.

The 2003 number marks the third year in a row that Hamvention's attendance had dipped. Attendance at last year's 50th anniversary event was 24,832, down about 5 percent from 2001's crowd of 26,151. The crowd size climbed to 28,804 in 2000, the year of the ARRL National Convention at Hamvention.

Matthews said Hamvention expects to wrap up negotiations within the next three weeks on a new, two-year contract with Hara Arena, Hamvention's home since the 1960s. The anticipated contract, in conjunction with support from local hotels and motels and area municipalities, "would allow Hamvention to stay in the Dayton area for the foreseeable future," Matthews' office said.

Hamvention 2004 will be held May 14-16. For more information, visit the Hamvention Web site <http://www.hamvention.org>.
…The ARRL Letter Vol. 22, No. 23 June 6, 2003

FCC WRITES DEVICE USERS ABOUT ALLEGED INTERFERENCE

Hold the phone! The FCC has written two Northern Virginia residents to follow up on complaints from a local amateur who's alleging that he's on the receiving end of harmful interference from telephone devices with the capability to support multiple cordless remotes. Both are unlicensed Part 15 consumer electronics devices made by a well-known manufacturer. The complaints from Bernie Keiser, W4SW--an ARRL member in Vienna, Virginia, near Washington, DC--represented a bit of a turnabout from the typical interference scenario, where ham operation occasionally generates complaints of interference to cordless consumer equipment.

"Harmful interference to a licensed radio service from a Part 15 device is a violation of FCC rules," warned Sharon Bowers, deputy chief of the Consumer Inquiries and Complaint Division of the FCC's Consumer and Governmental Affairs Bureau. Bowers explained that the equipment was classified as an "intentional radiator"--a device that generates an RF signal as part of its normal operation. In separate letters June 2 to the two Part 15 users--both also Vienna residents--she pointed out that if their cordless telephone devices cause harmful interference to licensed spectrum users, "the operator of the device is responsible for correcting the interference, ceasing operation, if necessary, whenever such interference occurs."

Keiser told ARRL that the interference--in the form of broadband noise from 2400 to 2450 MHz--impairs his ability to hear the AO-40 downlink and beacon on the band. "I have a 2.4-GHz cordless telephone that does not cause problems," he said. According to Keiser, the devices in question electronically poll various remote stations, and it's the polling function that apparently causes the noise. He was able to track down the noise sources on his own and has discussed the issue with his neighbors, with whom, he says, he remains on friendly terms. He said the owner of the device that's causing the worst interference is a communications attorney who understands the problem and hopes to deal with it through the manufacturer.

In her letters, Bowers cited the applicable sections of Part 15 and advised that the alleged harmful interference must be corrected before they may use the devices legally. She suggested the consumers contact the manufacturer or retailer of the devices to see if they'd either allow them to return them or exchange them for devices that don't cause interference.
…ARRL Letter Vol. 22, No. 24 June 13, 2003

FIRST HAM TV REPEATER IS DISASSEMBLED

We just disassembled the world's "FIRST" ATV repeater in Alexandria, VA just a month or so shy of it's being 30 years on the air. Originally operated under a FCC STA, WA9GVK/R led the way for all others in FSTV, at a time when the HAM user community was up in arms against the dual 6 MHz bandwidth requirement for a 70 cm inband machine. (reverse of SSB introduction in the '50's for HF)

This machine was finally a victim of site rental, little or no growth in the user group, and the principal's (and perhaps even more), my slow reduction in interest and willingness to spend personal funds to go to the small, dirty, difficult site for an unappreciative user community.

I don't mean this to sound like sour grapes, because it isn't intended that way, and we had a spectacular run here in the Washington, DC, area, but the user community should be aware it takes real money and effort to keep these things on the air. It also helps a lot to have a user community willing to go do some the myriad things or contribute funds necessary to upgrade and keep these things on the air.
…KA4CKI via Bill Munsil

ED. Note: I am extremely happy to report that the above condition is NOT happening in Columbus, Ohio. We have a bunch of very energetic and dedicated individuals who are willing to go the extra mile to help out where they can. Yes, some get interested and work at the hobby for a while then slowly disappear from the Ham circles. Others have been involved for quite some time and they too can get "burned out". This is normal here and with any hobby. (I just hope that after an absence, they return). But the interesting thing here is the fact that there are new faces emerging and those new faces are bound to be around for a while. Why? Because there are plenty of ATVers here that are willing to help those just starting. Not to discredit anyone but one individual in particular stands out above all the rest. Bill Parker, W8DMR, has helped more newcomers become experienced ATVers than anyone else. Hats off to Bill!
…WA8RMC

AMATEURS "FIRST OF THE FIRST RESPONDERS," DHS OFFICIAL SAYS

ARRL now is an official affiliate program of Citizen Corps <http://www.citizencorps.gov>, an initiative within the Department of Homeland Security <http://www.dhs.gov/dhspublic/> to enhance public preparedness and safety. ARRL President Jim Haynie, W5JBP, signed the formal Statement of Affiliation between DHS and ARRL during the ARRL 2003 National Convention June 21. Chief Operating Officer of the Emergency Preparedness and Response Directorate (FEMA) Ron Castleman represented Under Secretary for Emergency Preparedness and Response Michael D. Brown at the signing. Citizen Corps Liaison to the White House Liz DiGregorio called ham radio operators the "first of the first responders."

"You are there. You are part of that very, very first response when it happens locally," especially in the initial stages of an emergency or disaster, DiGregorio told an overflow audience. She urged amateurs to explore ways to expand their role in the community beyond being the last resort when other communication systems fail. "You need to show your community that you're engaged," she said. "They need to know as a community that ARRL is there."

Castleman said his agency really needs Amateur Radio's help. "Hams have a long and distinguished history of assisting and cooperating with FEMA," he said. He said FEMA wants to continue to work with Amateur Radio operators as partners and expand hams' community safety role. "We also want to help prepare every citizen across our country before disaster strikes," Castleman said.

The League joins the National Safety Council, Points of Light Foundation, National Voluntary Organizations Active in Disaster, National Volunteer Fire Council, National Fire Protection Association, Save A Life Foundation and The Jaycees as Citizen Corps affiliate programs.

The SoA calls on DHS and ARRL to raise public awareness of Amateur Radio as a safety resource. "That's what you are all about, and we need a safer America," DiGregorio said.

In addition, DHS and ARRL will cooperate in providing training and accreditation for Amateur Radio emergency communications. They also will work together to promote the formation of local Citizen Corps councils and assist them with education, training and volunteer service opportunities "that support first responders, disaster relief organizations and community safety efforts." As an affiliate, ARRL will be linked from the FEMA and Citizen Corps Web sites.

"We need you, and you need us, and we want to work together with you to make this all happen," DiGregorio concluded, "because we all share the same goal, and that goal is a better, stronger, more secure America."

The ARRL National Convention 2003 was held in conjunction with Ham-Com <http://www.hamcom.org> in Arlington, Texas. FEMA announced the SoA signing on its Web site <http://www.fema.gov/nwz03/nwz03_138.shtm>.
…The ARRL Letter Vol. 22, No. 26 June 27, 2003

NEWS FLASH! WA8UZP SPENDS MONEY!

Yep! You see it correctly. Jim actually spent some of his hard earned money at a Hamfest. As miraculous as it may seem, Jim, WA8UZP bought a 2 meter mobile rig from Jay, KB8YMQ. Judging from the picture, Jim looks real happy with his purchase. Thanks guys for sharing the experience with us.
…WA8RMC

DAYTON'S ATV REPEATER IS BACK ON THE AIR!

After many hours of work the W8BI ATV repeater is again on the air. Jess, KB8OFF and Dick, W8RVH did most of the work assisted by a number of others. In any case, look for their signal from Dayton. There have been a number of operators in the Columbus area that have already seen it and worked through it so far.
Jess describes it like this,

"We tuned up everything on Friday evening. It turned out just as we had hoped. We turned the power from 30 watts to about 58 watts avg. We turned up the power while Dick looked at the scope and set just before sync compression which turned out to be 58 watts with a blue and green picture. We then removed the extra transmit filter with no problems at all. We then removed the extra receive filter also with no problems noted. We then got the video and audio levels set and the whole thing worked like I have never seen it!!! We are about 1 P unit up at my house and over in Lynn, Indiana. The pictures are sharper than ever. No ghosting at all. The receive will bring up the repeater at about a P ½ or less and hold. I still can't believe it.
…Jess

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.

WD8MDI Dave Mathews Grove City, Ohio

…WA8RMC

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

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown. (For comments or additional listings contact me at towslee@ee.net).

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

Domestic homepages

http://psycho.psy.ohio-state.edu/atco	Ohio, Columbus, homepage (ATCO)
http://www.activedayton.com/community/groups/rmeeksjr/index.html	Ohio, Dayton ATV group (DARA)
http://users.erinet.com/38141/atv.htm	Ohio, Xenia KB8GRJ
http://www.qsl.net/ka8mid	Ohio, Chilicothe area, KA8MID homepage
	Alabama - Gulf Coast Amateur Television Society
http://www.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
http://www.w7atv.com	Arizona, Phoenix Amateurs(AATV)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://www.qsl.net/scats/	Florida, Melborn Space Coast Amateur TV Society (SCATS)
http://www.bsrg.org/aatn/aatn1.html	Georgia, Atlanta ATV
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
	Kentucky, Lexington Bluegrass ATV Society (BATS)
	Kansas, Kansas City Amateur TV Group (KCATVG**)**
http://www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.icircuits.com/dats	Michigan, Detroit Amateur Television System (DATS)
http://come.to/amateurtv.mn	Minnesota Fast Scan Amateur Television (MNFAT)
	Missouri, St Louis Amateur Television
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.no3y.com/radio.html	New Mexico, Farmingham
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	Pennsylvania, Phila. Area ATV
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.hats.stevens.com	Texas, Houston ATV (HATS)
	Texas, WACO Amateur TV Society (WATS)
http://www.hamtv.org/	Texas, North Texas ATV
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://lea.hamradio.si/~s51kq/	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.sfn.saskatoon.sk.ca/recreation/hamburg/hamatv.html	Saskatoon, Canada ATV
http://www.gpfn.sk.ca/hobbies/rara/atv3.html	Regina, Canada ATV
http://www.inside.co.uk/scart.htm	UK, Great Britain ATV (SCART)
http://www.cmo.ch/swissatv	Swiss ATV
http://www.rhein-land.com/atv	German ATV in "Niederrhein" area
http://www.arcadeshop.demon.co.uk/atv/	UK, G8XEU ATV homepage
	British Columbia, Canada VE7RTV repeater
	Auckland, New Zealand ATV
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.

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

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

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

HAMFEST CALENDAR

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

23 Aug 2003 x Portsmouth Radio Club Contact: Kim Lozier, N8ZW Phone: 740-456-1616 Email: n8zw@falcon1.net Friendship, OH
6-7 Sep 2003**Great Lakes Division Convention Findlay Radio Club http://www.findlayradioclub.org Contact: Bill Kelsey, N8ET PO Box 587 Findlay, OH 45839 Phone: 419-423-4604 Email: kanga@bright.net Findlay, OH
17 Aug 2003 +Warren ARA http://www.w8vtd.org/Warren, OH
23 Aug 2003 xPortsmouth Radio ClubFriendship, OH
21 Sep 2003 +Greater Cincinnati ARAhttp://cincinnatiamateurradio.comCincinnati, OH
28 Sep 2003 +Hamfest Association of Cleveland http://www.hac.org Cleveland (Berea), OH
5 Oct 2003 +Medina Two Meter Group http://www.qsl.net/n8tzy Medina, OH
11 Oct 2003 +Northwest Ohio ARC http://www.nwoarc.org Lima, OH
26 Oct 2003 +Massillon ARC http://www.marcradio.org Canton, OH
25 Jan 2004+Tusco ARC Gary Green, K8WFN 32210 Norris Road Tippecanoe, OH 44699 Phone: 740-922-4454 Email: k8wfn@tusco.net New Philadelphia, OH

ATCO REPEATER TECHNICAL DATA SUMMARY

Location:	Downtown Columbus, Ohio
Coordinates:	82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation:	630 feet above average street level (1460 feet above sea level)
Transmitters:	427.25 MHz AM modulation, 1250 MHz FM modulation and 2433 MHz FM modulation.
	Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
	Output Power - 427.25 MHz:40 watts average 80 watts sync tip
	1250 MHz:50 watts continuous
	2433 MHz:15 watts continuous
	Link transmitter - 446.350 MHz 1 watt NBFM 5 kHz audio
Identification:	427, 1250 & 2433 xmtrs. Video identify every 30 minutes showing ATCO & WR8ATV on four different screens
Transmit antennas:	427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
	1250 MHz - Diamond vertically polarized 12 dBd gain omni
	2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
Receivers:	147.45 MHz - F1 audio input control of touch tones
	439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
	915 MHz - F5 video link data from remote sites
	1280 MHz - F5 video input
	2398 MHz - F5 video input
Receive antennas:	147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
	439.25 MHz - Horiz. polar. dual slot 7 dBd gain major lobe west
	915 MHz - DB Products vertically polarized 10 dBd gain omni
	1280 MHz - Diamond vertically polarized 12 dBd gain omni
	2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

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

Manual mode functions:			
	00* then 1	Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
	00* then 2	Ch. 2	Select 915 receiver - manual mode
	00* then 3	Ch. 3	Select 1280 receiver - manual mode
	00* then 4	Ch. 4	Select 2411 receiver - manual mode
	00* then 5	Ch. 5	Select video ID - manual mode (the 4 identification screens)
	01* or 01#		Channel 1 439.25 MHz scan enable (hit 01* to scan this receive channel & 01# to disable it)
	02* or 02#		Channel 2 915 MHz scan enable
	03* or 03#		Channel 3 1280 MHz scan enable
	04* or 04#		Channel 4 2411 MHz & camera video scan enable
	A1* or A1#		Manual mode select of 439.25 receiver audio
	A2* or A2#		Manual mode select of 915 receiver audio
	A3* or A3#		Manual mode select of 1280 receiver audio
	A4* or A4#		Manual mode select of 2411 receiver audio
	C0* or C0#		Beacon mode – transmit ID for twenty seconds every ten minutes
	C1* or C1#		427.25 transmitter power output select (C1* = 40W output power or C1# = 1.5W output)
	C2* or C2#		2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)

Auto scan mode functions:		
	001	2411 receiver (normal mode - returns to auto scan)
	002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
	003	Equipt. room camera (select 001 when finished viewing camera so repeater will shut down**)**

CAMERA CONTROLLER KEYPAD FUNCTIONS

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

001 = RETURN TO NORMAL

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

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

ATCO MEMBERS AS OF July 29, 2003

Call	Name	Address	City	St	Zip	Phone	URL
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011		sdiggs4590@aol.com
K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	OH	43068	614-866-1399	wilbur.w@juno.com
KC3AM	David Stepnowski	735 Birchtree Lane	Claymont	DE	19703-1604		kc3am@aol.com
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026	614-876-6135	kc8asd1@netzero.com
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873	
W8CQT	Jim McConnell	350 N. State Road	Delaware	OH	43015-9644	740-363-1008	w8cqt@arrl.net
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551	delshoff@columbus.rr.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jbusic@copper.net
W8DLB	Denny Beardmore	PO Box 313	Bethesda	OH	43719-0313	740-484-4822	dlb@1st.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	133 Concord Way	Cranberry Twp.	PA	16066	724-776-2436	wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033	wb8dzw@aol.com
KB8FLY	Rod Shaner	124 West Walnut St.	Lancaster	OH	43130-4344	740-654-5694	rshaner@copper.net
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	KY	40511	606-253-1178	jrbarnes@iglou.com
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147		W8fz@arrl.net
KC8HCE	Adam Porr	6825 Ridgeway Ct.	Pickerington	OH	43147	614-837-6489	Kc8hce@arrl.net
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621	
WD8ITF	Larry Fields	953 W. Hopocan Ave	Barberton	OH	44203-7007	330-825-7148	lfields@neo.rr.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259	k8kdr@arrl.net
K4KLT, KD4ODQ	Bob & JoAnnSchmauss	P.O. Box 1547	Land O' Lakes	FL	34639-1547	813-996-2744	schmauss@att.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	OH	43223	614-276-1820	n8kqn@juno.com
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331	513-548-2492	walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	PA	17603-9563		deverterhf@dejazzo.com
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123	614-871-0751	phumphries@columbus.rr.com
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334		cbeener@columbus.rr.com
WB2LTS	Manny Diaz	8 Pearl Ave	Holtsville	NY	11742-1711		wb2lts@worldnet.att.net
KC8LZC	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722	twalter@emec.us
W8MA(ex wa8tte)	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081		
WD8MDI	Dave Mathews	2404 Hoose Drive	Grove City	OH	43123		wd8mdi@qsl.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660		ka8mid@qsl.net
WB8MMR	Mike Knies	1715 Winding Hollow Dr.	Columbus	OH	43223	614-875-4236	
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127	n8nt@columbus.rr.com
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881	firefoxtom11@netzero.com
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410		kb8off@prosurvisp.com
N8OPB	Chris Huhn	5590Blue Lagoon Ln.	Hilliard	OH	43026-9032	614-279-7577	
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	tom@hamtv.com
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	NY	11793	516-785-8045	
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261	kilowatt@biundo.org
WB8PJZ	Dave Morris	2323 Allentown Road	Lima	OH	45805	419-226-6997	dave@towercomminc.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	OH	43154	614-474-3884	rgburggraf@juno.com
K4PRS	Peter R. Sinkowski	4532 W Kennedy Bl #114	Tampa	FL	33609-2042		k4prs@yahoo.com
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081	614-891-9273	towslee1@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081	614-882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224	614-261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@glasscity.net
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617		zehrw@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119	614-878-0575	kb8rvi@hotmail.com
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689	w8rwr@sbcglobal.net
W8RXX,KA8IWB	John Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	MI	48144		
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119		
W8SJV	John Beal & family	5001 State Rt. 37 East	Deleware	OH	43015	740-369-5856	w8sjv@midohio.net
W8SMK	Ken Bird	244 N Parkway Dr	Delaware	OH	43015	740-548-4669	ken@midohio.net
N8SNG	Terry Rankin	414 Walnut Street	Findlay	OH	45840		
W3SST	John Shaffer	2596 Church Road	York	PA	17404		w3sst@juno.com
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	OH	45040		k8stv@arrl.net
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	OH	43223	614-272-5784	ed48@columbus.rr.com
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	OH	43062-7756	740-927-1196	dae14@copper.net
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	OH	43162	614-879-7482	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328	wa8uzp@qsl.net
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883	hiramhunter@aol.com
N8XYZ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230		
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	OH	43223	614-272-8266	mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064		
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771	
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-4007	Bricks@dragonbbs.com
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-836-3519	ka8zny@copper.net

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost.

The membership period is from January 1ST to December 31ST. New Members will receive all ATCO newsletters published during the current year prior to the date they join ATCO.. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. As an option for those joining after mid July, they can elect to receive a complementary October issue with the membership commencing the following year Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

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

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Frank Amore WA8HFK
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

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

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

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

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

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (04/20/03)..…….....……$2481.55
RECEIPTS(dues)..... .....……...$
OTHER INCOME (bank interest)……..……...$
Pay Pal charges……$ ( )
Antenna party pizza and pop……...……..$ (50.00)
Bank check cashing charges……$ ( )
CLOSING BALANCE (08/01/03).....……..….....….....……..….$??????

Note: Complete financial information is not available at this time. Data not supplied here will be reported in the next Newsletter.

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

FIRST CLASS MAIL

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