

ATCO NEWSLETTER

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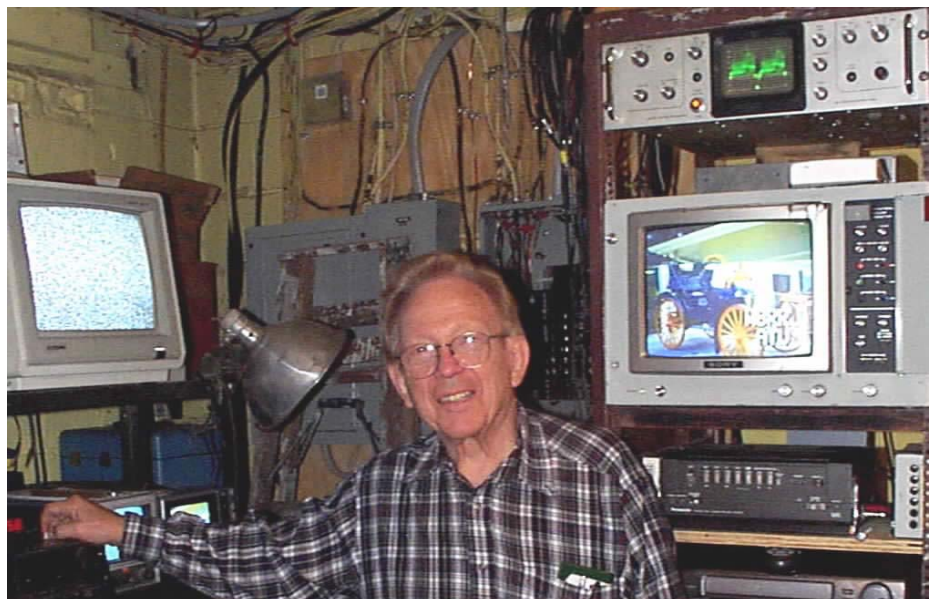
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ATCO HAM IN THE SPOTLIGHT

This time we feature John Hull, W8RRJ. John has been hamming for many, many years where he learned and designed with vacuum tube technology before I even knew what a tube was. John's ATV experience takes him back to the 50's where he regularly talked and exchanged pictures with Bill Parker, W8DMR. Now as an ATCO member we hope he will let the rest of us draw from his wisdom and experience.

As you may see from the picture, John's ATV equipment is far from primitive and his signal on 439 shows it. Thanks John, for allowing us into your shack for a look.



ACTIVITIES ... from my "workbench"

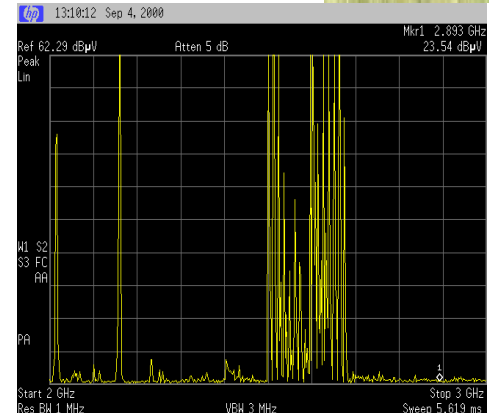
Well, here it is again, time to let you know just what we've been up to these last few months. The answer is "plenty" but that needs elaboration so let's get right to it. The summer weather has been ideal this year and has allowed us to accomplish many more things...ham items included!

The first that comes to mind is the status of our repeater 427 transmit and 439 receive antennas. It's hard to believe those items have been up since the fall of 93. I replaced the plastic radomes once before in 95 after discovering the existing plastic wouldn't hold up to the UV rays from the sun. Now here it is the year 2000 and it looks like the replacement material has passed its life span. In addition, many have reported inferior performance lately. So first we removed the 7.5 dB gain transmit antenna and temporarily replaced it with a rib cage slot antenna with an estimated 6 dB gain. The rib cage slot antenna is of open construction and wouldn't last long in the environment. I took the transmit antenna home, set it up in my back yard and measured the gain before I did anything to it. It turned out that it only had about unity gain at best. An investigation revealed that the internal coax where the two slot feeds join had a type N connector pin that recessed back into the cable and became disconnected resulting in one of the two slots totally dead. I fixed that with a new cable, tightened additional connections and further restrained an internal cable that showed signs of vibration abuse. Finally I installed a new radome. The vendor I obtained it from said, "it will not deteriorate from the sun's rays for 10 years at a minimum". He consulted with GE Plastics division for the proper material. **We'll see if he's right!** In any case, it's fixed and installed back at the repeater. It has a 7.75 dB gain now which is slightly better than it was new. See the picture of the antenna at the right in my back yard strung up on the local cable TV line running across the back. If my figures are correct, unity to 7.75 dB is slightly better than 1 P unit improvement (remember 6 dB per P unit). The receive antenna was then removed and replaced with the rib cage antenna. I tested the receive antenna which doesn't seem in too bad shape. Its gain is about 5 dB. It's now cleaned up and waiting till I get more time to complete it, install the radome, tune it up and get it back downtown. Hopefully that will happen by the time you read this. After that I would like to bring the rib cage antenna home just to see what the gain of it really is. I'll report on that later.

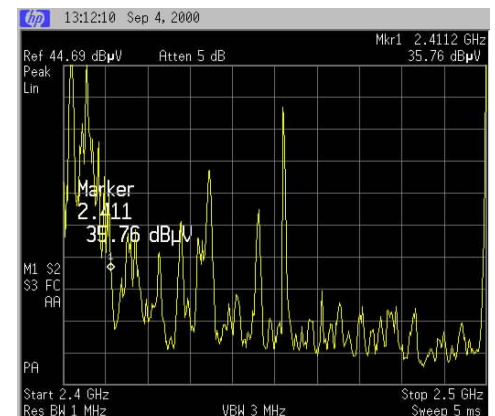


The next item is the 2.4 Ghz transmitter. It stopped working and an investigation found a bad transistor in the 15 watt amp. As a result, the 2.4 Ghz output has been running about 1 watt (driver only). Dale WB8CJW, removed the transmitter and sent it back to Downeast Microwave for repair. We've now got it back and re-installed. The 15 watts is back and the signal strength is improved. Thanks Dale!

Next I move to the elusive interference that has swamped the 2.4 Ghz receiver for the last year or so. Determined to find the source, I borrowed an HP spectrum analyzer from the local HP field engineer and went to work. This time the analyzer at the repeater site showed many signals from 2410 to 2450 MHz, which is right in the middle of our band. I can't identify it for sure but believe it to be wireless ethernet communication right in the same building as the repeater. In fact, I think one of the unidentified antennas on site is in fact the source. I checked the signal on both the transmit as well as the receive antennas. (We have separate antennas for transmit and receive. One is mounted normally and the other is inverted and mounted directly below). The normally mounted antenna received the interfering signal about 100 times stronger than the other did even though only 6 feet separates them. Both antennas and feedlines were checked and are OK. So, being closer to that unidentified antenna is really suspicious. At this time, it looks like 2.4 Ghz reception at the repeater site is not going to happen. Since it's not our intention to give up on 2.4 Ghz, we probably should look into remote 2.4 Ghz receive sites where the signal is received away from downtown and linked by 900 or 1280 MHz. This will take some planning.



The analyzer plots at the right illustrate the signal levels on the 2.4 Ghz band at the repeater site. The top one shows a real strong signal about 2.01 and again at about 2.15 Ghz. They are probably broadcast TV studio-transmitter links and are too far down band to cause a problem. The "burst" of signals at 2.5 to 2.7 Ghz are MMDS "wireless" cable TV signals transmitted from the LeVeque building but again are far enough up the band so they pose little problem. However, the bottom picture shows the signal activity from 2.4 to 2.5 Ghz, which is our active portion. The marker is at 2.411 Ghz, which is the receiver center frequency. It is buried in other strong signals many times stronger than a typical received ATV signal so it would be lost. Oh, well! Maybe we can move the receiver down into the 2.3 Ghz portion of the band where it is "quieter". I know it would potentially violate a band plan but at the Wavecom power level, it's considered weak signal anyway. How about that?



OK, enough on that. That's about all. Don't forget the Fall Event coming up the 22nd. See you there so we can talk about it some more.

...WA8RMC

DIGITAL TELEVISION...More of Henry's thoughts on the subject.

Well, some of you likely remember my comments a few years ago that without a DTV standard the FCC had doomed DTV and HDTV, and the 8VSB system was not doing well. 8 VSB tests all showed it worked where it was predicted to work, and didn't work where it was predicted not to work. The idea of returning to everyone having a roof top antenna was absurd, and receivers didn't even meet the test equipment standard that was then 6 years old, now nearly 10. COFDM was raised as an alternative method to deal with the pesky indoor reception issue. Proponents of both systems made carefully chosen "experi-tests" to prove their system was better. Now the manufacturers and networks and stations have invested hundreds of millions of dollars to build facilities, and Panasonic and Sony have basically withdrawn their DTV sets from the market under the guise of waiting for newer silicon with delay lines that can cope with both pre and post ghosts. Now the major manufacturers have said in publications (electronic Media for one) that HDTV is dead for broadcasting in this country and no one is buying it for broadcast, but cinema folks are for making digital movies Vs the traditional 35 mm or larger film formats. The lack of rush to the stores by consumers (yawn) and lack of promotion overall has essentially killed HDTV for broadcast, and SDTV [standard def digital TV] the digital equivalent of really good NTSC is about all that is being sent. The few HD promos you see on CBS and elsewhere will evaporate because the manufacturer-broadcaster deals have quietly been allowed to expire. As for 2006, it's a pipe dream as the FCC sits on hundreds of applications for over a year, failing to even have a mechanism to process the DTV applications in its "rapid roll-out" of DTV. All stations were supposed to have applications in and be in construction by Jan 1 2002. More likely, DTV will evolve into an over the air multicasting system of bits for sale and less than VHS quality video streams for secondary revenue programs. Watch for COFDM to come from behind and be the format of choice as digit casting Vs broadcasting takes over the DTV channels. As of now, still no revenue models exist for DTV H or otherwise, and not one station has even had an * in the Nielson ratings to indicate a digital audience. As I've said before, I expect to be retired with my VHS machines and DVD's and tapes long before DTV takes over the airwaves. The digital broadcasting is smashing head on with the AOL/Microsoft/Time Warner/Disney et al. web datacasting world and the latter didn't even feel the impact of the bug on the windshield. Broadcast DTV is still on the launch pad, rusting and falling apart like a Steam Locomotive in the diesel engine age. Be prepared to pay for any entertainment in the future, the good stuff will all be pay per view and the cheap stuff we used to make fun of on cable is all moving to broadcast TV. The TV executives have all toasted the demise of network TV, and are simply trying to out last each other to the golden parachutes. Watch for more no talent, no plot, no writer, no production value "reality programs" that are cheap to do and provide little entertainment value as the big 4 make the prophecy of the end of quality TV come true for lack of brains and guts on their part. They no longer compete; they simply shovel money into lower and lower standards of programming.

...Henry, KB9FO KB9FOHAM@aol.com

HDTV: 8VSB vs COFDM ...Any clue as to what this means?

From 8VSB or COFDM. Those letters and a number may represent an expensive decision that will cost ABC, CBS, NBC, CNN, ECT, and ECT. a lot of money as well as the TV viewers. 8VSB, COFDM is a digital modulation technique for the new HDTV. HOWEVER, THEY ARE VERY INCOMPATIBLE WITH EACH OTHER!!!! The FCC wants to stick with the 8VSB. This is because Zenith has contributed to the 8VSB standard; however the major broadcast networks want to use something better, which is the COFDM. You may not understand what COFDM or what 8VSB is; however the difference is one will allow a very good reception verses one that will give NO improvement over multipath signals. This issue needs to be brought to public attention. The reason is that they are now making the HDTV sets as well as hardware e.g.. HDTV PC video cards which use the 8VSB standard. IN OTHER WORDS THIS WILL BE LIKE VHS VERSES THE BETAMAX VCR'S..... and we all know what happened to Betamax. The 8VSB standard has a lot of problems with multipath degradation, meaning instead of a double image (ghosting) you get a blank screen..... this a digital signal remember. COFDM takes care of the multipath problems as well as having the advantage of allowing a moving transmitter e.g.. a chopper or roaming van for those live chase scenes. The FCC is taken its recommendations from the ATSC Advance Television Standards Committee. ATSC 8VSB was (note the past tense) moving in the direction of global adoption. However several countries now have dropped it in favor of COFDM (Australia, Brazil, India, Singapore, Japan). ABC and NBC have sent the FCC a letter saying in so many words that COFDM would be much better over the 8VSB. Unfortunately the FCC is not listening.

What I'm asking is since the networks cannot get through the FCC about this issue.... just maybe we the consumers may want to hammer the FCC with e-mail stating that the FCC should listen to these guys. After all we all know how rapidly the technology changed for computers, just imagine being stuck with a 486 90 MHz system for 25 years. That's what the FCC is basically wants to do.

...Charles <charles@mpinet.net>

I'm not promoting one system over the other. My only goal is to help us be aware of the changes happening around us.

Read and enjoy!

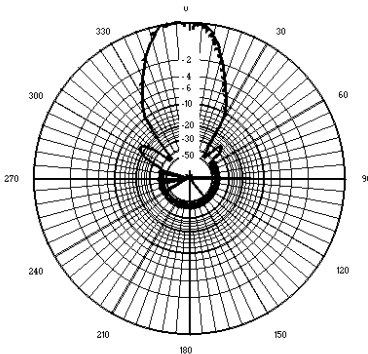
Ed.

D ANNUAL ANTENNA PARTY...A great time at Ted's place.

For the third year in a row, we had an excellent time measuring and comparing antennas and generally having a good time eyeballing. This year we had 439, 1200 and 2400 MHz antennas to check. All checked good this year with no antenna surprises. The only surprise we DID have was the fact that the antenna program wouldn't run. As it turned out we had an old version of the software program and when N8NT, Bob, arrived with the latest, everything started working correctly. The pattern below at the left shows Jay's long yagi as the best. Next to that is an omni antenna of unknown characteristics. At the far right is, I think, Jay's other long yagi. In addition to the plots, check out the pictures of us having a good time. Plan upon joining us next year with or without an antenna to measure. We'd love to have you join us.

To display menu, press the F1 function key

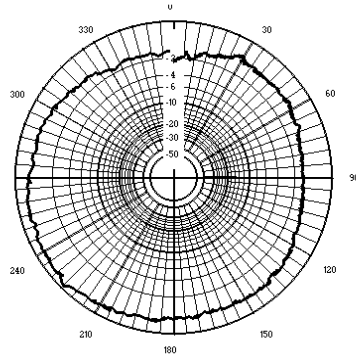
Function Complete. Thu Jul 27 09:17:41 2000



v: 3.77, dbu: 0.13, degrees: 360.00

To display menu, press the F1 function key

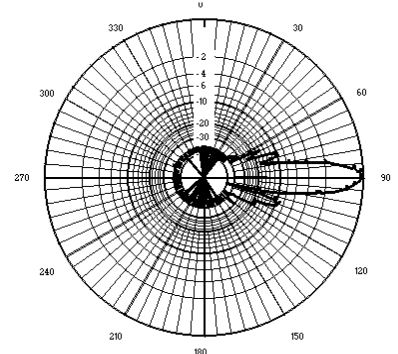
Function Complete. Thu Jul 27 09:11:36 2000



v: 3.20, dbu: 1.50, degrees: 360.00

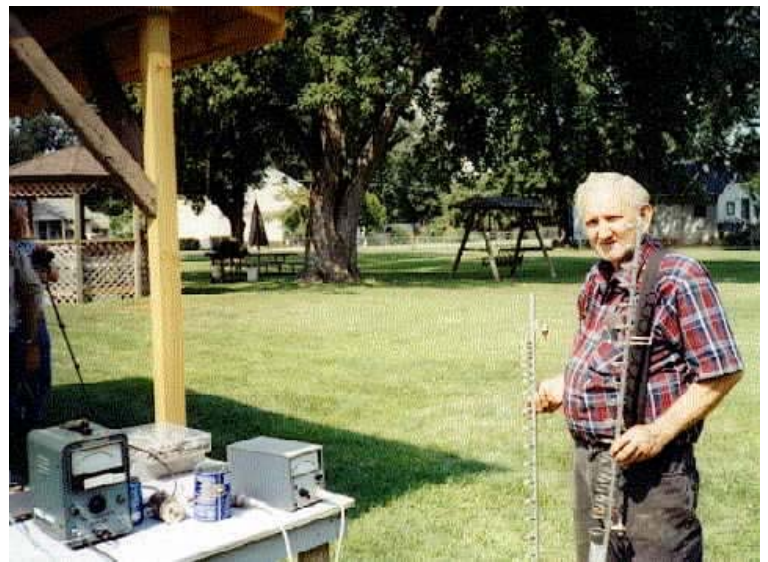
To display menu, press the F1 function key

Function Complete. Thu Jul 27 09:00:26 2000



v: 0.02, dbu: 46.97, degrees: 360.00

Directly below is a yagi antenna mounted on the test mast/rotor assembly and ready to be tested. At the right are a few of the participants watching the proceedings under the shelter Ted built in case of rain. Good job Ted; it prevented the rain very well! And finally at the bottom right is Ted, our gracious host, holding a 2.4 Ghz loop yagi to be checked. ...WA8RMC



FM SIGNAL DETAILS...A good dose of theory about FM modulation.

From time to time we need a little refresher on some of the theory surrounding our hobby. I feel that it not sufficient to just communicate via Ham Radio/ATV but sometimes understand in part just how and why the equipment works. I know most of you are not technically oriented and that's OK. However, read, digest and try to understand how it works just enough to be able to ask questions about it, OK?

*I ran across the following explanation of how FM signals are created and thought you'd enjoy it. After all, the explanation was in response to someone else that had a problem understanding it. It is an excerpt from an Engineering Email newsletter to which I subscribe. It is **reprinted here with permission from the "ASK US" section of "Circuit Cellar/Chipcenter"** located on the web at www.chipcenter.com and answered by Bob Meister. Anyone is invited to check out the web contents of this site for some good general engineering knowledge.*

(Note that the author refers to AM as that of broadcast radio 540-1700 kHz and FM as that of broadcast radio 88-108 MHz but it applies to other frequencies also). WA8RMC.

QUESTION:Sound Amplitude in FM Signal

I thought I read that FM signals are "amplitude limited", having flat amplitude on a time domain plot. Maybe I got this wrong. If this is true, I can't surmise how high volume information is transmitted and received. I can perceive how the various frequencies of audio information would be conveyed (by frequency modulation), but how is high volume information passed with FM? With AM, I can see that the "shape" of the carrier's waveform conveys frequency information in the time domain. And I can guess that the "amplitude" of that envelope could convey "loudness." Does the amplitude of an FM signal vary with higher volume?

John

ANSWER Go get a cup of coffee and sit down, because this is going to be a long answer. Actually, it might even become a broadcasting tutorial.

In the beginning, there was sound. Someone speaks or sings into a microphone. The air pressure against the microphone's diaphragm generates a tiny electrical signal that varies in strength according to the loudness of the audio. (Strictly speaking, "loudness" is a term relating one signal's amplitude to another, but we'll use it here in its traditional interpretation.) The frequencies that generate the signal are represented by a number of changes in the amplitude--higher frequencies mean more changes per unit time. You can see this on an oscilloscope. This audio signal is amplified, gain-controlled, and peak-limited by all sorts of studio equipment until it is of sufficient amplitude to be fed into a transmitter. This same path is taken whether we're going to be transmitting AM (amplitude modulation) or FM (frequency modulation). We have a signal whose amplitude varies over time.

An AM transmitter generates a stable carrier wave at the appropriate frequency: 530 to 1700 kHz. This signal's amplitude can be controlled (modulated) by the audio signal at a low level, then amplified by linear class-A amplifiers, until sufficient power exists to be radiated by the antenna system. Because of the necessary linear class-A amplification, this method is inefficient. Traditional or "high level modulated" transmitters amplify the carrier frequency, and separately amplify the audio signal, then use this high power audio signal to control (modulate) the amplitude of the last radio frequency (RF) amplifier stage in the transmitter. All of the RF amplification can be performed by efficient, non-linear class C amplifiers, while the audio frequency (AF) amplification can be performed by efficient, class B amplifiers. The big drawback here is that for a transmitter of a given RF power, you need 50% additional input power just for modulation. But, linearity and the expensive class A amplifiers are eliminated. The final output of either method is an RF signal with amplitude that varies according to the loudness of the incoming AF signal. This variation occurs at the same frequency as the incoming AF signal. The individual waves of the RF signal occur at the carrier frequency, somewhere in the AM radio band.

Positive audio signals increase the instantaneous transmitter power, while negative audio signals decrease it. You can't decrease the power any lower than zero, and the point at which this happens is called 100% negative modulation. This condition (cut-off) must be avoided at all costs. Properly adjusted audio limiters control this situation. The positive audio signals can push the power level past 100% positive, and this is done routinely by all radio stations to improve the apparent signal loudness.

A modern AM receiver has an RF amplifier, a variable oscillator, and a mixer to bring the very weak 530 to 1700 kHz signal down to an intermediate frequency (IF) of approximately 455 kHz. It is amplified some more, then a simple diode detector is used to recover the peak voltage from the signal. The output voltage represents the amplitude of the modulation that was created by the transmitter. This signal is amplified and presented to the loudspeaker whose movement is eventually detected by your ears and processed by your brain as sound. Also, the carrier frequency's amplitude is detected and used to operate an automatic gain control (AGC) circuit that changes the gain of the various amplifiers as station strength varies. This is especially useful in car radios.

Any noise that accompanies the AM signal is amplified, detected, and reproduced faithfully. Arcing motors, noisy electrical appliances, even lightning, can generate noise that travels through the receiver where you hear it as static and buzzes. Due to its nature, the AM system is extremely noise-intolerant.

Now, let's see how Mr. Armstrong improved broadcasting after WW2. An FM transmitter begins with a stable oscillator that can either be in the 88 to 108 MHz band, or a sub-frequency that eventually gets multiplied up to the carrier frequency. The incoming audio signal is pre-emphasized--a simple RC filter increases the amplitude of the higher audio frequencies by 6 dB per octave. This is done to help reduce noise levels later. This audio is then applied to the oscillator as modulation, where it shifts the oscillator's frequency rather than its amplitude. The amplitude of the AF signal determines the amount of frequency shift, or deviation. The frequency of the AF signal determines how fast the oscillator is deviated. The amplitude of the oscillator signal remains constant; the audio level varies the frequency shift at a rate according to the frequency of the incoming AF signal. The higher the modulating (audio) frequency, the faster the carrier wave changes frequency. This is the primary difference between AM and FM signals.

A positive change in amplitude increases the instantaneous transmitter frequency, while a negative change in amplitude decreases the frequency. 100% modulation is reached when the deviation hits +/- 100 kHz. Exceeding this value just causes the carrier frequency to change further. There's no cutoff problem to worry about as when an AM transmitter is pushed past 100% negative modulation. Audio limiters usually control the maximum deviation.

If the oscillator is at the same frequency as the transmitter (direct modulation), then its signal must shift no more than +/-100 kHz with modulation. If the modulated oscillator signal is at a sub-frequency (indirect modulation), such as 4 MHz, it is multiplied (in this case by 24) until it reaches the final transmitter frequency. Note that the deviation is also multiplied by the same amount, so the oscillator only needs to deviate about 1/24th of the final amount, or about 5 kHz. Eventually, the same +/- 100 kHz signal is created. The transmitter must have a bandwidth of at least +/- 200 kHz at the carrier frequency. The modulated signal is amplified by an efficient class C amplifier and presented to the antenna system.

Now see what happens in an FM receiver. The same RF amplifiers, variable oscillator, and mixer are employed, but the intermediate frequency is usually 10.7 MHz. At this point, this wide-band signal is highly amplified and clipped to remove any amplitude variations. What remains is a signal whose frequency changes like the original audio signal, and the amount of change is proportional to the amplitude of the AF signal. This frequency swing is recovered by one of several demodulation methods (frequency discrimination, quadrature detection, etc.) that convert changes in frequency to changes in signal level (amplitude). The recovered audio is now de-emphasized--a simple RC filter decreases the amplitude of the higher audio frequencies by 6 dB per octave. This cancels the pre-emphasis done in the transmitter. This also reduces the high frequency noise (inherent in the receiver) by the same amount, increasing the apparent fidelity of the audio signal. Normal audio amplification and a loudspeaker recreate the high fidelity sound at the receiving end.

The FM receiver does have an AGC circuit, but it's there to prevent front-end overload on strong signals. Any received signal must be amplified sufficiently to remove any amplitude variations present. The high-gain IF and limiter circuits do this. Any noise (amplitude variation) that might sneak onto the signal (static, lightning, etc.) is totally eliminated by the huge amount of IF gain and limiters. This is what gives FM so much noise immunity. On a weak signal, however, the limiter won't be saturated, and you might pick up some noise on the received signal, usually in the form of hissing noise.

So, to recap, an AM signal is composed of a carrier wave whose amplitude varies according to the audio level or loudness. This variation, or modulation, occurs at the same rate as the incoming audio signal. The carrier wave's frequency is constant while its amplitude changes according to the audio signal level. An FM signal is composed of a carrier wave that shifts frequency by an amount determined by the audio level or loudness. This variation, or modulation, occurs at the same rate as the incoming audio signal. The carrier wave's amplitude is constant while its frequency changes according to the audio signal level.

An AM receiver converts the changing amplitude of the carrier wave into the amplitude variations due to changes in loudness of the AF signal. An FM receiver strongly limits the signal to remove any trace of amplitude variation, then converts the changing frequency of the carrier wave into the amplitude variations due to changes in loudness of the AF signal.

The following table summarizes some of the important differences. Note that I haven't previously mentioned some of the items listed below. See what an FCC First Class Radiotelephone License, an amateur radio license, and a dozen years of broadcasting experience will do? Hope you read this answer in less time than it took me to write it!

...Bob Meister

Parameter	AM	FM
Modulation Technique	Change of Amplitude	Change of Frequency
Modulation Location	Final Amplifier	Oscillator
Carrier Frequency	540 - 1700 kHz	88 - 108 MHz
Intermediate Receive Frequency	455kHz	10.7 MHz
Detection Method	Diode Rectifier	Quadrature or Discriminator
Noise Immunity	Low	High
Frequency Response	20 - 7500 Hz	20 - 15,000 Hz
Audio Fidelity	Low	High
Pre- and De-Emphasis	Not Used	Transmitter And Receiver
IF Stage Limiting	None	Mandatory
Additional Sub-carriers	No	Yes

ATV vs BEVERLY HILLS POLICE...The ham airwaves are invaded.

It seems that the Beverly Hills Police Department may be setting up an ATV operation on the Ham bands without Ham participation. K6FCC (interesting call) points this out in rather graphic detail which drags Tom O'Hara W6ORG into the discussion. Each has their valid points but it ends in a duel and irritating others listening to the discussion. I omitted some of the crossfire but perhaps I still left too much in...you be the judge. In any case, the subject matter is interesting and should be taken seriously. WA8RMC

From: Khalil Ladjevardi To: n6stv@juno.com Date: Tue, 25 Jul 2000

I need your help. Seems that the Beverly Hills Police Department's DCS is adamant in using its ATV for law-enforcement during the Democratic National Convention. I received frantic calls from some of the Bev Hills PD DCS members about what to do. Apparently, the police has decided not to use amateur radio call signs nor to observe any courtesy as far as announcing intentions on the 2M frequencies assigned for 426.26 MHz. ATV or the 434 MHz. ATV. I have contacted Riley Hollingsworth many times via e-mail, but no response from Riley at FCC. Officer Ron Derderian, KB6VTN, Bev Hills PD DCS Coordinator is making statements that they are "above" FCC; that FCC rules do not apply to them. That Bev Hills PD DCS can use amateur radio frequencies without regards to FCC Rules. The Bev Hills DCS is having a ATV exercise/training on Sat., Aug.12th Also, Bev Hills DCS has two uncoordinated repeaters in Bev Hills that have input in the 430 MHz. and output in 439 MHz. area. If Bev Hills uses the ATV, they will not be able to use their 2 UHF voice repeaters. I believe ATV has a 6 MHz. bandwidth. Any thoughts? I was thinking of having a ATV QSO with other "legal" ATVers while BHPD DCS is doing ATV. K6FCC Khalil Ladjevardi

Tom O'Hara responds:

The complainant is an unhappy ex-member of the Beverly Hills PD DCS. I have spoke with both parties and there is no hard evidence of the accusations. The PD has an active RACES group and uses ATV per 97.407. If they really came on with an ATV repeater on 430/439 they would trash about 100 FM voice links. 9 meg separation for an inband repeater would be quite tough too. There have been no complaints to SCRRBA, the local frequency coordinators, or any observations by local ATVers. ATV is big here for RACES and public service operations. I have a list of over 24 city and county agencies that use ATV as part of their RACES emergency operations. We who live here like to help as best we can given all the periodic riots, earthquakes, fires and other natural or man made disasters. It would also be quite hypocritical given 97.1(a) - emergency communications is probably the main reason today to justify keeping our bands. The problem we have here Vs most of the country is the high population density and terrain which makes for running out of spectrum quickly for everyone, especially video bandwidths, when ever there is a disaster or major event. Be assured that many hams and SCRRBA will be watching to see that the ham bands are not abused by the public safety agencies during the DNC. SCRRBA has coordinated with non-ham groups before for STA's during major events like the Olympics in 1984 and it has worked out with out abuse, and come down on illegal users.

Some thoughts are the Beverly Hill PD, Los Angeles City PD and Los Angeles County Sheriffs us of the ham bands. It is a double-edged sword working with Police agencies if they are the recognized RACES group in the area. We need to encourage public service applications of ATV and ham radio but at the same time it is easily abused by these vary agencies. The very first rule in part 97 - 97.1(a) speaks to emergency communications as one of the primary uses of ham radio. I believe it is probably the greatest reason to politicians that we still have our ham bands - sharing with government radar is the primary technical reason. Consider the choice given to the average voter if Public Safety (cops, fire) sez we need more frequencies to protect the neighborhood vs. Joe ham who just uses it for a hobby or primarily to gab with his cronies? We need to actively participate and continually show the public that hams and their gear are the best source of communications in a major disaster because there are so many of us scattered about and have many repeaters as well as long haul HF capabilities. Most emergency agencies have a single EOC or just a few repeater sites which could be what is knocked out by earthquake, flood, tornado, etc. Forget repeaters or telephone, they will be overloaded or maybe inoperable initially. Some agencies still don't have simplex capabilities with their mobiles and portables. On the other hand, many Police agencies that I have worked with to bring ATV into their emergency preparedness program suddenly gotta have it for normal police work. The cost is much cheaper than FCC Compliant Part 90 gear and you don't have to mess with licensing or sharing with other Part 90 or broadcast users. The attitude is often, hey, we will just do what we want, the Feds aren't going to arrest the cops or throw a big fine like they do regular citizens, we will operate where ever and whenever we want until the Feds tell us not to. What often turns them is the fact that a smart lawyer can get any video or ham band evidence throw out of court since it was illegally obtained. In addition, if their signals are heard or seen by local hams and they have no ID, or are on for long periods of time, any number of hams could decide to jam them. I tell them it is better to go along with the local band plan, get some hams in your RACES group and do it all legally .97.407 says that RACES agencies can do emergency preparedness drills for 1 hr per week and not more than two 72 hr per year. Nothing defines how they must conduct their drills as long as the purpose is for emergency preparedness. So they can do surveillance in high crime areas, monitor desenting groups at political conventions, or car chases from a helicopter if they want. It just cannot be abused by being a regular thing or not controlled by licensed hams. I think we ought to try to work out the problems with the police/RACES agencies rather than tell them no way. Those of us in areas with major disasters are more inclined to do this after experiencing big earthquakes, fires, riots and other natural or man made events. My opinion, for what it is worth in the recent discussion.

Tom O'Hara W6ORG

Now Khalil takes a shot:

This is in response to a statement made by Mr. Tom O'Hara, W6ORG, SCCRBAATV Bands Manager (and owner of PC Electronics) on this e-maillist/reflector last week which states that my complaints against the BHPDDCS (Beverly Hills, California, Police Department's Disaster Communications System) was because I was unhappy with the BHPD DCS. (Mr. O'Hara has never responded to my numerous e-mails to him about BHPD DCS nor has he ever contacted me about BHPD DCS' use of ATV). Let me state for the record that this Mr. O'Hara's statement that I am UNHAPPY with the BHPD DCS is 100% CORRECT. The question becomes why would someone be unhappy with a specific organization, in this case the BHPD DCS? (after having spend 15,000 volunteer hours with the whole DCS system).. Answer: Because the BHPD DCS continuously violates FCC Part 97 Rules and Regulations on an ongoing-basis. Yes, it is CORRECT that I was asked to leave BHPD DCS (after helping to create BHPD DCS and bringing in a qualified amateur radio instruct to train the citizenry of Beverly Hills to become hams over the past 7 years). I had been honored for my numerous achievements by the City of Beverly Hills, Los Angeles County DCS, Santa Monica DCS, Culver City CCARES, and others . The reason I was asked to leave BHPD DCS is that I continuously reminded the decision-maker(s) at BHPD and BHPD DCS that several of the BHPD DCS practices were in direct violation of FCC Part 97 Rules & Regulations. These violations include:

- 1) Operation of two non-coordinated repeaters (439.820 and 439.6375 MHz.) with odd-split inputs directly in the satellite/ATV portion of the band plan for Southern California.
- 2) Continuously transmitting ATV without any amateur radio call signs (audio nor visual) for direct law-enforcement use on both F-1 and F-2 (434 and 426.26 MHz.) ATV frequencies. Disregarding the need to contact other ATV operators on the assigned 2 meter contact frequency for each of the two ATV frequencies. The attitude has always been " We are the BHPD. If any ham gets on OUR ATV frequencies, we will have OUR BHPD officers arrest these non-BHPD DCS hams.."
- 3) ILLEGAL modifications of KENWOOD, ICOM, YAESU, and ALINCO amateur radio equipment for the purposes of 2 way communications on not only the ham bands but also police, fire, city hall, water/power, school district, parks/recreations, etc. frequencies. This is in direct violation of FCC Part 97/ FCC Type acceptance rules. There are heavy FCC fines levied for these types of violations.
- 4) The BHPD DCS' decision-maker(s) attitude is " WE ARE THE BEVERLY HILLS POLICE DEPARTMENT!! WE CAN DO WHAT WE WANT!! WE ARE ABOVE THE FCC!!"

It is time for all amateur radio operators to wake-up and realize that many of our primary frequencies are being secretly snatched-away from us by commercial, law-enforcement and other "non"-amateur-radio interests. BHPD is not the only agency which is trying to appropriate our radio spectrum. This is the time and place where we, as hams, should make a stand. It is funny (ironic?) that we have one of the richest cities in the world, Beverly Hills, California, breaking rules and at the same time, this city (Beverly Hills) is too CHEAP to buy type-accepted radios from MOTOROLA for the use by the various departments (including BHPD)!! Yes, I am very UNHAPPY with BHPD DCS..

73 de K6FCC Khalil Ladjevardi Formerly EP2KL of Iran

Here's Tom responding to Khalil again:

RE: Jim Zahrdt (KF9AU) and John Hennessee N1KB comments about Beverly Hills PD Everything John said, I said to the Beverly Hills PD Emergency Communications Ham, Richard Schwab, N6BBW, when I talked to him about Khalil Ladjevardi, K6FCC's, accusations. N6BBW promised me that they would follow the rules, especially during the DNC since I told him many other ham emergency comm groups were participating as well as others monitoring. I found out that they did apply for and have a 70 cm repeater coordination in process with SCRRBA, but you should all understand that So. Calif. is in the long process of shifting to 20 kHz channel spacing and some frequencies for new systems will not be available until existing systems switch over - hopefully within a few months. We are talking 600 systems here. So Beverly Hills seems to be making an effort "to go straight." That is about all myself or SCRRBA can do. Anyone can file a complaint with the FCC if they actually interfere with a coordinated repeater or link and don't cease operation. However, the complainant should be someone with first hand knowledge of the incident and preferably with some proof or information that will make it as easy as possible for the FCC to verify. The ID and other violations are tough for the local FCC to monitor and I'm sure they have bigger priorities, especially during the DNC. It took the local FCC about 5 months to shut down an illegal video surveillance transmitter I had reported twice to them about that was interfering with a number of voice repeaters. I even gave them the proximate location within a 1/2 mile. So I understand the frustration. There are a number of hams monitoring for abuses of the ham bands during the DNC here in Los Angeles but the bigger problem is the Experimental license that LA PD has and the STA that the LA County Sheriff has for running video from helicopters on our 2.4 GHz band that can trash any of the 6 ATV repeater inputs or 4 links in that band. We view this as an attempt to show that Part 90 licensee's can coexist in our ham bands. So most of our effort in ATV at this time is to monitor and record the interference as well as be as active as necessary transmitting so they know it is not an unused band ripe for grabbing. Remember when ham radio was all just fun?

Tom O'Hara W6ORG

Here Khalil seems to want the last word:

When I read Mr. Tom O'Hara's (PC Electronics/SCRRBA ATV coordinator) last e-mail response, the question comes into mind why is Mr. O'Hara defending the BHPD ? The answer is now quite obvious. Mr. O'Hara sells ATV equipment. Although Mr. O'Hara "claims" that he will not sell to law-enforcement, he does. Let us address the statement that BHPD DCS has applied to SCRRBA for coordination. That is 100% correct; however, what Mr. O'Hara fails to disclose is that the BHPD DCS applied to SCRRBA in the year 1994. What year is it now? Has Beverly hills gotten an answer? Maybe the answer is on route via a carrier pigeon and the pigeon got lost? Oh, well, it may arrive someday, I hope the bird is still in the air!! Mr. O'Hara says in his e-mail that BHPD DCS is " going straight?" What is that? Is it not safe to presume that our "Guardians in Blue" are always straight ? If they are not, as Tom seems to indicate, maybe we have the "Rodeo Drive" version of LAPD's "Rampart" ? Maybe the press will come to call this scandal "Rampart-Rodeo"(?) Since Mr. O'Hara seems to admit thru his own e-mail that BHPD has not been following the rules, this now clearly shows the need for FCC enforcement with regards to this organization. Thank you,

Mr. O'Hara for your honesty in pointing this out. The violations of Beverly Hills DCS (BHPD DCS) are too numerous; I will not bore readers of this forum providing all of the details. In summary, violations occurred during the Governor of Pennsylvania's and the Chinese President's visits to Beverly Hills when ATV was utilized. In essence, the operations were filled with non-identified transmissions, operations on non-coordinated frequencies, and BHPD DCS members were being encouraged to break FCC Part 97 Rules & Regulations by giving them (members) the "false" impressions that there is no need to ID. I sincerely hope that for the sake of the amateur radio community, BHPD DCS/BHPD will go "straight". I leave you with this question: "Straight to where.?"

K6FCC Khalil Ladjevardi

Let's let Tom wrap it up:

Defending BHPD? No, just stating the facts as I know them and my efforts to try to get them to go straight as I have done with many government agencies whom I have talked to that would abuse the ham frequencies, but at the same time, I am all for helping their ham emergency preparedness groups. As I stated before, it is tough to get FCC enforcement and it has to come from those directly involved. The FCC has to catch them in the act, our just reporting a violation only has the effect of directing their attention and hopefully raising their enforcement priorities to do some thing about it. K6FCC (interesting call isn't it given this problem) called me earlier this year and asked me to look into the interference, which I did - I manage the 23 cm and ATV bands for SCRRBA, a So.Calif frequency coordinator. I did not find any, but I did talk to one of their ham officers and did what I could to tell him of the illegalities and potential interference. Now K6FCC is attacking me and making wild unfounded accusations. I have no federal police powers nor can do any more than what I have done. I cant help anyone get retribution for what ever personal wrong they believe has been done to them by the BHPD and resent this personal attack on my integrity. Sure I sell to police departments, but only for use by their RACES or emergency service groups and I make sure I get the name and call of the responsible ham before the sale. How many ham stores even bother to make sure they are selling to a ham? I have even refused a sale to the BHPD in the past because they wanted to use the wrong frequency. I am sure at some time some ham cops have bought from me and abused the use of the ham bands but I have no way to know every time I get a call if the person calling is a cop number one, and second even if they do, and I remind them of the limitations of ham use, that they don't lie. I do what I can and am probably one of the few who verify that purchases are made by licensed hams and refuse orders if I believe the equipment will be misused. I loose a lot of sales to those who will sell ham band gear to just anyone for any purpose. K6FCC needs to direct his displeasure where it belongs back with the BHPD and bug the FCC until they act. I think this is enough on this thread, I know I won't waste any more of this remainers bandwidth going back and forth as K6FCC vents his spleen and goes into personal attacks, but I will continue to do what I can to keep the cops straight on ham use and to support emergency communications as best I can.

Tom O'Hara W6ORG

FCC GRANTS EXPERIMENTAL LICENSE FOR 2300-2305 MHz

From the ARRL newsletter on 8/18/00.

The FCC's Office of Engineering and Technology has issued an experimental license to a California company to test market a wireless Internet system in the San Diego area on 2300 to 2305 MHz. Amateur Radio has a secondary allocation on 2300-2310, the lower segment of the 13 cm band.

According to the ARRL band plan, the 2300-2305 MHz segment supports a variety of amateur activities, including weak-signal CW, SSB, digital modes and moonbounce as well as beacons and translator inputs and outputs. The ARRL continues efforts to get 2300-2305 MHz elevated to primary status for amateurs.

The FCC issued the call sign WB2XIK to ArrayComm Inc of San Jose to deploy its "i-BURST" wireless Internet technology using up to 3000 "market trial" participants with portable units and up to 50 base station nodes, each with 50 W EIRP. The license, granted in April but only recently made public by the FCC, is good for 2 years. The FCC gives no notice of experimental applications until they're granted.

The experiment would be conducted within a 35-mile radius of San Diego. Market trial users will be equipped with laptops and i-Burst wireless modems that operate at a maximum EIRP of 1.3 W. The company says it will make clear to participants that the system is experimental and temporary.

ArrayComm said it chose the 2300-2305 MHz band for its propagation characteristics and because it's near frequencies under consideration for so-called third-generation or "3G" services. "The band has not been allocated for a primary use and this is not heavily encumbered with existing users," the company said in its application materials.

ArrayComm acknowledged Amateur Radio's secondary occupation of the segment but downplayed the likelihood of interference between its experiment and amateur weak signal work in the vicinity. The City of Los Angeles recently was granted an experimental license to operate a TV downlink system in the 2402-2448 MHz band.

...ARRL Newsletter

ATV Across the "POND" ...Here's a glimpse of activity in Slovenia

I have had the pleasure of communicating with Mijo Kovacevic, S51KQ, in Slovenia (one of the republics that form Yugoslavia) about ATV activity. Initially Mijo wanted to copy the ATCO Newsletters for his use (no problem). I then found that they too are very actively engaged in ATV. I asked Mijo to tell us about their ATV activity. It is quite interesting as indicated by the response below in his own words. WA8RMC.

"Art,

Here follows a short information on our ATV activities in Slovenia. Maybe this could be interesting for your readers.

We have no special club in Slovenia, but a national wide half private ATV organization called ATVS. I'm the founder of the ATVS, the ATV manager at ZRS which is Slovene major national HAM organization, and the editor for ATV in Slovene HAM magazine, plus in few foreign printed magazines. Slovenia is a very small country, but after the 1992 war with the Serb army, we really pushed ATV forward. They do not call me: "... father of Slovene ATV" just for fun, hi. Our national HAM magazine (CQ-ZRS) is printed every two months and we have inside our own ATV rubric in each number. Unfortunately my knowledge of the English language is poor, as you can see. Therefore a lot of potentially interesting ATV/FM/Hardware/Software articles written by me and published in CQ-ZRS, stay for now in Slovene language only. I am trying to write the very new ATV and other projects bilingual (Slovene & English), because of publishing in one of the best ATV magazines in EU - in Netherlands REPEATER magazine, which is from this year 1st number bilingual too (Dutch & English).



There is a big interest for ATV in Slovenia, but due to low monthly incoming, not all are able to buy all needed equipment. Anyhow, we use 23cm and higher bands. 900 MHz is in EU unfortunately not allowed, on 70 cm we have only 6 MHz wide band, and there is a lot of NBFM and WBFM (high speed Packet radio) networks - it's not usable for any ATV operation. Also we use in analog ATV mode only FM. Almost any of our ATV repeaters is not a simple translator. On each site we have one or more outputs, plus much more inputs. There is at least one panoramic camera with azimuth, elevation & zoom remote controls. Onboard video generators are main parts of each system. Plus last year we built on 3 of our sites DVB MPEG-2 satellite downlinks for 24h live ATV link from our friends in distance Nederland (PI6ALK). They have the only digital ATV live channel on broadcasting satellite over Europe (downlink on 13GHz). On any ATVRC repeater controller is more then 250 DTMF remote commands available. So, our ATV users can really enjoy in various combinations on each ATV repeater here.

But this is not all. Slovenia is not a flat country, but have a lot of hills and mountains. Ranging from small ones, up to the dangerous ones from 2000 to 3800 m ASL. Anyone working on microwaves can imagine how many problems can occur because of those hills. Only a tiny fraction of them have electricity on the top, and not all are freely accessible for HAM's. So, we have really heavy problems to link all ATV repeaters together. There are only few ATV links operational for now, but we are working on it. The largest and longest one is from Maribor (S55TVM on ski center), going some 200 km direction Vienna (OE), and forward to Linz (OE), Salzburg (OE), Munchen (DL). That link path is called "Euro ATV link" and the total length (I guess) is perhaps more than 1000 miles... with a lot of ATV repeaters involved in any of 3 countries (Germany, Austria, Slovenia). It's a full duplex microwave ATV network with one or more sound subcarriers, plus picture carrier. This is also the largest terrestrial ATV network in Europe. Our inside links are shorter ones, but very difficult because of hill barriers. Almost all of our ATV repeaters are privately owned & maintained. We have no commercial sponsors, so everything what we have is done with our own little money. ZRS gave us free web space on server and in CQ-ZRS magazine, plus free licensing for repeaters. The ATVS organization is not only involved in repeater building and maintenance, but we also organize each year a national ATV contest. Each participant receives after contest a diploma on national ATV meeting which take place in one of the tourist hotels. There are each year two HAM trading shows here, on which we ATVer's are present with new and used equipment, too. Those are our main activities on ATV area. We wish you (ATCO team) all the best, and keep your good work on!



With best regards,
Mijo Kovacevic, S51KQ
Slovene ATV / Repeater & Beacon Manager
ATVS - ATV team Slovenia
<http://lea.hamradio.si/~s51kq>

(Now I KNOW we have to work hard to keep up with their progress! Notice their call sign at right indicates operation on 3 cm!)



ARRL IMAGE COMMUNICATION SURVEY...We're only 6.6% but growing!

Here's a poll taken by the ARRL on or about 9/5/00 about image communications with the results from about 1334 respondents. It and other survey results can be found at www.arrl.org/survey.php3 The question is, "Do you operate any of the image modes"?

SSTV only	7.2 % (96)
FSTV only	6.6 % (88)
Fax only	0.7 % (10)
Two or more of the above	6.9 % (92)
I do not operate any image modes	78.6 % (1048)
Total votes:	1334

HUNINGTON ATV REPEATER UPDATE

For your info the Huntington repeater is still down for repairs. Here is the last I have heard from KB8QEK... Bill Dean ka8mid@qsl.net

I understand the tower site the ATV was using has been sold, and we may have to move within 6 mo. or so. We hope to move to near South Point, Ohio where the 147.15 repeater is located. It will be moved to the defunk LP TV 5 tower near the same location. This should be as good or better location and about 7 miles closer to you. This location is across the river from Camden Park west of Huntington.

...Mike Booth KB8QEK

SATELLITE WEB SITES...Keep up to date with the space station progress.

Everything that follows is true. The ham that sent this does NOT tell falsehoods. He's devoted to satellite communication(s). ...W8DMR

First web site is: <http://www.heavens-above.com/>

You pick your location and then click on something like the ISS (International Space Station), and the site will provide a list of times when the ISS can be seen with the naked eye at your city. One column says "alt" which is the up-angle. Tells how high in the sky it is. The higher, the better chance to see it above the houses. I've watched the Shuttle & Mir space station and it is really neat. The shuttle looks like a tiny shooting star, while the Mir space station looks like a local airplane flying over because of its larger size.

The BEST viewing time is 5-7 AM. After Daylight Savings Time ends there will be passes in the evening. Viewing MUST be done an hour before & after sunrise or sunset. It will be dark here, but in space the sun is still brightly shining on the space object.

The next web site: <http://spaceflightnow.com/tracking/index.html>

Has a list of upcoming space activity from ALL countries involved.

Last website: (Ariane Space of Europe) <http://spaceflightnow.com/ariane/v130/status.html>

I am interested in this one because it has an amateur radio satellite aboard. (French Giana, South America & waiting to be launched.) This is the largest most advanced amateur radio satellite ever built. Because of all the delays and setbacks it will also be probably the first and the LAST one built like this.

When the launch occurs & if all goes well, then I will have a new satellite to talk on (me and thousands of others, hi). I've spent more time on satellite communications than any other kind. I've logged over 4,000 contacts with amateur radio operators all over the world via satellites. I've communicated with several cosmonauts & astronauts. At the annual satellite club meetings I met face-to-face with 3 of the astronauts. See you later, and have fun star gazing!!!

...Perry Yantis, WB8OTH

ATV 100 MILE RUN IN LA.

This last weekend we participated with ATV at the Angeles Crest 100 mile run in the mountains above the Los Angeles basin. Check out the photo story at: <http://home.pacbell.net/kb6ooc/ac100/2000/pics.html>. The 190 runners have 33 hours to do the 100 miles on foot on remote mountain trails from the Wrightwood ski area to finish about 2 miles north of the Rose Bowl in Pasadena. Highest point is 9300 ft msl, Mt. Baden Powel. Their crews and family are naturally very concerned, especially during the night as to how their runner is doing. So we dropped in our portable 426.25/913.25 AM ATV repeater by helicopter to an aid station that is only accessible by the aid station people by 4 wheel drive and used it for duplex video rather than repeat by just unplugging the video at the transmitter from the receiver and plugging in a local camera. The operation went all night and the family and crews were very appreciative to be able to see and talk to their runner as well as give a boost to the runners spirits after climbing up to Newcomb's Saddle (4000') and 68 miles into the run. Chantry Flats, mile 75, is also a medical check point so if there were any serious medical problems at Newcombs aid station, ATV would be able to give a visual to the medical personnel. ATV in public service can be fun as well as helpful.

...Tom O'Hara W6ORG

ATV HARD HAT CAM FROM PC ELECTRONICS...What will Tom think of next!



There are many emergency service applications where the on site commanders must remain in an emergency operations vehicle but would love to see what others are seeing. This is especially true when decisions must be made quickly and cannot wait for a voice description or interpretation. The Hard Hat Cam is ideal for transmitting to a portable repeater back to an emergency operations center. A picture *is* worth a thousand words.

This application note describes how to build into a hard hat a 50-100 milliwatt 434 MHz battery operated ATV transmitter and color camera. One should note, however, that by building this ATV gear into the hard hat, it can reduce the amount of impact protection and therefore the user should take that factor into account if used in a dangerous area. Snow free line of sight DX from the hard hat to a 8 dBd Omni or 5 element beam is about 1/2 mile. Both the Videolynx ATV transmitter and CG-35 mini color camera are powered by two 9V alkaline batteries in parallel which can give over 10 hours of continuous operation.

I purchased a plastic hard hat at Home Depot because I could not find a metal one. Metal would make a much better ground plane, but instead, I glued two 1.5x13 inch strips of aluminum foil in the shape of an X inside the plastic hard hat after drilling.

A 3/8 diameter hole is drilled in the top center for the antenna Radio Shack BNC connector. This

jack is preferred because it has a ground solder lug on the end. Next drill 1/8" diameter holes for the 9 Volt battery holders with one 3" to the rear of the BNC and the other 2" to the front. I used 4-40x3/8 screws with the nut and lock washer on the outside of the hard hat to mount the battery holders. 1/16" holes are drilled for the slide switch approximately 1.5" forward and to one side from the BNC.

Drilling for the CG35 mini color camera is a little more involved. A hole must be drilled in both the camera bracket and hat with a .312 dia. drill so that the cable plug can be fed through from inside the hat. Drill 1/8" holes for the two camera bracket mounting holes; mount the bracket using two 4-40x3/8 screws, lock washers and nuts, and then drill out the bracket and hat thus insuring good alignment of the holes.

Remove the bracket. Remove the connectors on the camera cable. Next, cut two 1.5x13" strips of aluminum foil and glue to the hat inside and centered on the antenna jack hole. Let it completely dry then cut the holes free with an Exact-O knife.

Make a 1" wide sheet aluminum or brass bracket for the Videolynx transmitter by first drilling a 3/8" diameter hole centered and 1/2" from one end. Make a right angle bend 1" from the drilled end. Loosely mount the bracket on the BNC jack. Then place the Videolynx against the bracket with the leads pointing toward the BNC and bend the metal tight around the transmitter module.

Mount the power slide switch, battery holders, and camera. Connect the camera red power cable and Videolynx power leads to each side of the dpdt slide switch on one end. Connect both of the 9V battery clip leads to the respective center lugs - red +9 V

on one side, black or ground on the other. Rather than splice the yellow video coax I put a RCA plug on the cable and plugged into the Videolynx video jack. The line audio cable is not used. Use a good resonant 50 Ohm antenna plugged into the BNC jack such as the Diamond RH519 available from us. You can also take the hard hat off and plug in a small beam like the OAL 5L-70 cm to more than double the distance for fixed portable applications. A 3/8 diameter hole is drilled in the top center for the antenna Radio Shack BNC connector. This jack is preferred because it has a ground solder lug on the end. Next drill 1/8" diameter holes for the 9 Volt

Parts list and sources:

Videolynx transmitter - P. C. Electronics \$99 RCA Plug - Radio Shack 274-339

CG-35 mini color camera - P. C. Electronics \$99 DPDT slide switch -Radio Shack 275-403

Diamond RH519 whip antenna - P. C. Electronics \$28 9V battery clips - Radio Shack 270-324

BNC jack - Radio Shack 278-105 9V battery holders - Radio Shack 270-326

...W6ORG ©9/2000

WHY RADIO AMATEURS ARE CALLED "HAMS"

Have you ever wondered why radio amateurs; are called "HAMS "? Well, it goes like this: The word "HAM," As applied in 1908, was the station call of the first amateur wireless stations operated by some amateurs of Harvard Radio Club. They were Albert S. Hyman, Bob Almy, and Pogie Murry. At first they called their station "Hyman-Almy-Murry." Topping out such a long name in code soon became tiresome and called for a revision. They changed it to "HYALMU" Using the first two letters of each of their names. Early in 1910, some confusion resulted between signals from the amateur wireless station "HYALMU" and the Mexican ship named Hyalmo. They decided to use only the first letter of each name, and the station call became "HAM".

In the early pioneer days of unregulated radio, amateur operators picked their own frequency and call letters. Then, as now, some amateurs had better signals than commercial stations. The resulting interference came to the attention of congressional committees in Washington, and congress gave much time to proposed legislation designed to critically limit Amateur radioactivity.

In 1911, Albert Hyman chose the controversial Wireless Regulation 13HI as the topic for his thesis at Harvard. His instructor insisted that a copy be sent to Senator David L. Walsh, a member of the committee hearing the bill. The Senator was so impressed with the thesis that he asked Hyman to appear before the committee. Albert Hyman took the stand and described how the little station was built and almost cried when he told the crowded committee room that if die bill went through, they would have to close down the station because they could not afford the license fees and all the other Requirements which the bill imposed on amateur stations.

Congressional debate began on the Wireless Regulation Bill and the little station "HAM" became the symbol for all little amateur stations in the country crying to be saved from the menace and greed of the big commercial stations Win didn't want them mound. The bill finally got to the floor of congress, and every speaker talked about the "poor little statics HAM." That's how it all started.

You will find the whole story in the Congressional Record. Nationwide publicity associated station "HAW" with Amateur operators. From that day to this, and probably to the end of time in radio, an amateur is a "HAM."

From Florida Skip Magazine, 1959; Thanks to September 1998 issue of AARC/OVER, bulletin of the Austin Amateur Radio Club, Inc, ...Submitted by W8DMR

NEW MEMBER SECTION

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 the lifeblood of our group so it's important that we actively recruit new faces aggressively.

KC8LZC Tom Walter, Columbus OH
WB2LTS Manny Diaz, Holtsville NY

...Art WA8RMC

FREE EMAIL ACCOUNTS...coordinate our personal Email addresses?

Jim proposed we list our Email addresses with QSL.NET so that if and when we change our Internet provider, just change the qsl.net direction so all the people that have the QSL.NET address won't have to change the address on their end. Then, all address listings in the ATCO Newsletter would remain unchanged. Good idea or not...let's discuss at the Fall Event the 22nd. Jims description follows:

Hi Art!

The free e-mail and web page at qsl.net is being provided by generous hams who want to keep us "communicating". They will accept maintenance donations if someone wants to send something. And, the automatic forwarding of e-mail to your favorite e-mail address is called "POP3" e-mail account technology. My e-mail can now be sent to: WA8UZP@qsl.net and I will still receive it here. You would only have to ask our members to do a onetime setup with qsl.net and they can "pop" their e-mail to their current or future favorite e-mail location. No one has to remember a bunch of different e-mail addresses (callsign@qsl.net for everyone) and you get out of the updating business. The WEB page there is a bonus and each ham can add as little or much as they want to their personal web page at qsl.net
...Jim (WA8UZP)

AN ATV PIZZA PARTY?...Why not? Let's get together more often.

A number of us decided that a frequent pizza party gathering might be a good idea. Now one would question that "If we see each other frequently via ATV, then why meet somewhere to do more of the same?" Well, does Pizza help answer that? As you all know, a frequent "eyeball" is a good idea even though we DO talk and see each other on the air. Then there is no better way to eyeball than to do it while feeding our face! As a result, the first ATCO ATV pizza party was born. It's best to locate a place that's close to the freeway so Donato's in the Easton shopping center was selected. I believe we should rotate places and organizers so...when are the next one? Somebody speak up.



The last one was in late August and was represented by about a dozen people talking about various topics while consuming the great pizza. We all had a great time. The picture above was captured during the discussion.
...WA8RMC

FALL EVENT DETAILS

It's Fall Event time again. Be sure to mark your calendar for Sunday the 22nd of October at 1:00 PM. This is the second (and last) time this year that we formally get together to socialize, eat and receive great door prizes. Thanks to you, useful prizes are pulled from beneath the workbench, dusted off, dragged to the Fall Event and donated to us for "recycling". All kidding aside, the prize department always has yielded a very good selection. Come, donate, and have a good time.

Don't forget that according to our charter, we must hold officer elections the last formal meeting of each year. This is it, so be prepared to vote for your favorite candidate. The present officers on the ballot are as follows:

President - Art Towslee WA8RMC
Vice president - Ken Morris WA8RUT
Secretary - Rick White WA3DTO
Treasurer - Bob Tournoux N8NT

ATCO

2000 FALL EVENT

1:00 PM - SUNDAY

OCTOBER 22, 2000

ABB PROCESS AUTOMATION
(ACCURAY)

*** SHELTERHOUSE ***

650 ACKERMAN ROAD
FOR MORE DETAILS, CONTACT
ART - WA8RMC 891-9273

LUNCH PROVIDED - DOOR PRIZES
BRING A FRIEND AND SEE OLD BUDDYS
SHOW AND TELL

DIRECTIONS TO THE ATCO EVENT

From I-70 either EAST or WEST Bound:

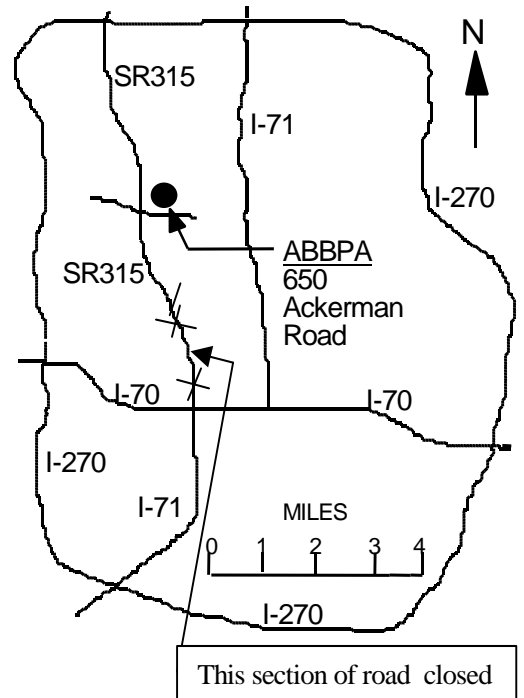
Take I-70 to I-270 bypass on the west side of the city. Exit onto I-270 north to the SR-315 exit on the north side of the city. Travel SR-315 south about 5 miles to Ackerman Road. Turn east on Ackerman under the freeway about 200 yards to first driveway on left. (SR 315 is still closed between I-70 and Ackerman Road)

From I-71 traveling NORTH bound toward Columbus:

While traveling north on I-71, take I-270 bypass west crossing I-70. Continue north on I-270. Exit I-270 onto SR 315 south. Travel on SR 315 south about 5 miles to Ackerman Road. Turn east on Ackerman under the freeway about 200 yards to first driveway on left. (SR 315 is still closed between I-70 and Ackerman Road)

From I-71 traveling SOUTH bound toward Columbus:

(DIRECTIONS IF YOU'RE "NORTH" OF I-270).
Take I-71 SOUTH to I-270 Bypass Loop & head WEST on I-270 to SR 315.
Take SR 315 south about 5 miles to Ackerman Road. Turn east on Ackerman
(under SR 315) about 200 yards to first driveway on left.



ATV EQUIPMENT SUPPLIERS... Find your ATV stuff here!

Below is a list of manufacturers of ATV equipment that I have found. There is no endorsement of any of the manufacturers listed below so buyers beware. If I or anyone else that I know of has had any trouble with a manufacturer, it won't be listed. As I get more info, I'll add manufacturers. Likewise, if I hear of any trouble, it'll be removed. Good luck and keep me advised.

...Art WA8RMC

Michael Kohlstadt, KD6UJS has a limited supply of used but working Pacific Monolithics 2.4ghz downconverters and power supplies which will work fine for the repeater. Phone: 408-926-0430.

CCI Communications Concepts, Inc.
508 Millstone Drive
Beavercreek, OH 45434-5840
(937)426-8600 Voice
(937)429-3811 Fax
Email: cci.dayton@pobox.com
<http://www.communications-concepts.com> ATV Equipment

SHF Microwave Parts Company
10GHz Gunn oscillators and Antennas
7102 W. 500 S.
LA PORTE, INDIANA, 46350
Fax: 219-785-4552

DCI Communications
Interdigital filters and cavities
Box 293, 29 Hummingbird Bay
White City, SK, Canada S0G5B0
Phone: 306-781-4451
<http://www.dci.ca/>

MCM Electronics
650 Congress Park Drive
Centerville, OH 45459
(800)543-4330 Voice
(800)765-6960 Fax
<http://www.mcmelectronics.com>

Mouser Electronics
958 North Main Street
Mansfield, TX 76063-4827
(800)346-6873 Voice
(817)483-0931 Fax
Email: sales@mouser.com
<http://www.mouser.com>
Electronics Parts House

Spectrum International
J-Beams, KVG, Micromodules, VSB
John Beanland
Phone: 978-263-2145.
Email:
Spectrum@ma.ultranet.com
filters

Downeast Microwave
Antennas, Power Amplifiers, Deluxe Downconverters, microwave parts.
954 Rt. 519 Frenchtown, NJ 08825
Phone: 908-996-3584
Fax: 908-996-3702

ATV Quarterly (ATVQ)
ATV magazine publisher
5931 Alma Drive
Rockford, IL 61108
Phone 815-398-2683
FAX 815-398-2688
Email: atvq@hampubs.com

Allied Electronics
7410 Pebble Drive
Fort Worth, TX 76118
(800)433-5700
<http://www.allied.avnet.com>
Electronic Parts House

ATV Research Inc.
TV cameras & related parts
1301 Broadway PO Box 620
Dakota City, NE 68731-0620
Phone: 402-987-3771
Homepage: www.atvresearch.com
Email: atc@pionet.net

Jameco Electronic Components
1355 Shoreway Road
Belmont, CA 94002-4100
(800)831-4242 Voice
Email: infor@jameco.com
<http://www.jameco.com>
Electronic Parts

Hosfelt Electronics Inc.
2700 Sunset Boulevard
Steubenville, OH 43952-1158
(800)524-6464 Voice
(800)524-5414 Fax

The Wireman, Inc.
261 Pittman Road
Landrum, SC 29356
(800)727-9473
(864)895-4195
Wire and Cable

Hamtronics Inc
Ham receivers, transmitters
Antennas, Preamps
<http://www.hamtronics.com/>

PC Electronics
ATV Transmitters, Receivers
Manufacturer/Reseller
2522 Paxson Ln.
Arcadia, CA 91007-8537
Phone: 626-447-4565
Fax: 626-447-0489
tom@hamtv.com
www.hamtv.com

GEKCO Inc
TV test signal circuit boards
PO Box 642
Issaquah, Wa 98027-0642
Phone: 425-392-0638
Email: sales@gekco.com
www.gekco.com

E. H. Yost & Company
2211-D Parview Road
Middleton, WI 53562
(608)831-3443 Voice
(608)831-1082 Fax
Email:
ehyost@midplains.net
Batteries

Fair Radio Sales
1016 E. Eureka P.O. Box 1105
Lima, OH 45802
(419)227-6573 Voice
(419)227-1313 Fax
Email: fairradio@wcoil.com
<http://www.fairradio.com>
Electronic Surplus Equipment

Pauldon Associates
210 Utica Street
Tonawanda, NY 14150
(716)692-5451 Voice
ATV Receivers and Transmitters

Webster Communications, Inc.
115 Bellarmine
Rochester, MI 48309
(800)521-2333 Voice
(810)375-0121 Fax
Electronic Parts

M²
Antennas
7560 N. Del Mar Ave.
Fresno, Ca 93711
Phone: 209-432-8873
<http://www.m2inc.com>

Black Box
1000 Park Drive
Lawrence, PA 15055-1018
(800)552-6816 Voice
(800)321-0746 Fax
Email: info@blackbox.com
<http://www.blackbox.com>
Electronic Connections

Cable X-Perts
416 Diens Drive
Wheeling, IL 60090
800-828-3340 Voice 847-520-3444 Fax
<http://www.cablexperts.com>
Wire and Cable

Phillips-Tech Electronics MMDS, ITFS
downconverters and antenna systems
P.O. Box 8533
Scottsdale, AZ 85252
Phone: 602-947-7700
Fax: 602-947-7799

Directive Systems
RR#1 Box 282 Dixon Road
Lebanon, ME 04027
(207)658-7758 Voice
(207)658-4337 Fax
Antennas
<http://www.directivesystems.com/>

Universal Radio Inc
6830 Americana Parkway
Reynoldsburg, Ohio 43068
614-866-4267
<http://www.universal-radio.com>

Wyman Research Inc.
8339 S 850 W
Waldron, In 46182-9608
765-525-6452
<http://www.svs.net/wyman>
wyman@svs.net
ATV transmitters & transceivers
SSTV equipt.

INTERNET ATV HOME PAGES (list verified 06/01/00)

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).

Domestic homepages

<http://psycho.psy.ohio-state.edu/atco>
<http://www.radio-amateurs.com>
<http://users.erinet.com/38141/atv.htm>
<http://www.hayden.edu/Guests/AATV>
<http://www.qsl.net/aatv/>
<http://www.citynight.com/atv>
<http://www.qsl.net/atn>
<http://w6yx.stanford.edu/~stevem/atv>
<http://home.tampabay.rr.com/k4lk/>
<http://www.nfds.net/~kb4oid/atv.html>
<http://www.qsl.net/scats/>
<http://www.bsrg.org/aatn/aatn1.html>
<http://members.tripod.com/silatvg>
http://www.ussc.com/~uarc/utah_atv/id_atv1.html
<http://kcatv.winning-edge.com>
<http://www.bratsatv.org>
<http://www.icircuits.com/dats>
<http://www.minn.net/~n0mnb/>
<http://www.intecnet.net/vidking/>
<http://www.njin.net/~magliaco/atv.html>
<http://www.qsl.net/~no3y>
<http://www.lloydio.com/oatva.html>
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm

<http://www.usaor.net/users/ka3fzf/>
<http://www.voicenet.com/~theojkat/w3phl.html>
<http://www.geocities.com/Hollywood/5842>
<http://www.hats.stevens.com>
<http://www.wacoatv.org>
<http://www.hamtv.org/>
http://www.ussc.com/~uarc/utah_atv/utah_atv.html
<http://www.qsl.net/w7twu>
<http://www.shopstop.net/bats/>

Ohio, Columbus, homepage (ATCO)
Ohio, Dayton ATV group (DARA)
Ohio, Xenia KB8GRJ
Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
Arizona, Phoenix Amateurs(AATV)
California, San Francisco ATV
California, Amateur Television Network in Central / Southern
California, South Bay ATV Group Stanford University
Florida, Tampa Bay Amateur Television Society (TBATS)
Florida, Emerald Coast Amateur Television Society (ECATS)
Florida, Melborn Space Coast Amateur TV Society (SCATS)
Georgia, Atlanta ATV
Illinois, Southern, Amateur Television group
Idaho ATV
Kansas, Kansas City Amateur TV Group (KCATVG)
Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
Michigan, Detroit Amateur Television System (DATS)
Minnesota, Fast Scan Amateur Television (MNFAT)
Missouri, St Louis Amateur Television
New Jersey, Brookdale ARC in Lincroft
New Mexico, Farmingham
Oregon, Portland ATV (OATVA)
Oregon, Southern Oregon ATV

Pennsylvania, Pittsburg Amateur Television in Pittsburg
Pennsylvania, Phila. Area ATV
Tennessee, East ATV
Texas, Houston ATV (HATS)
Texas, WACO Amateur TV Society (WATS)
Texas, North Texas ATV
Utah ATV
Washington, Western Washington Television Soc. (WWATS)
Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

<http://www.batc.org.uk/index.htm>
<http://www.sfn.saskatoon.sk.ca/recreation/hamburg/hamatv.html>
<http://www.gpfn.sk.ca/hobbies/rara/atv3.html>
<http://www.inside.co.uk/scart.htm>
<http://www.cmo.ch/swissatv>
<http://www.rhein-land.com/atv>
<http://www.arcadeshop.demon.co.uk/atv/>
<http://lea.hamradio.si/~s51kq/>
<http://www.burnabyradio.com/ve7rtv/>
<http://www.qsl.net/zl1qf/atvug/ATVusers.html>

British ATV club (BATC)
Saskatoon, Canada ATV
Regina, Canada ATV
UK, Great Britain ATV (SCART)
Swiss ATV
German ATV in "Niederrhein" area
UK, G8XEU ATV homepage
Slovenia ATV
British Columbia, Canada VE7RTV repeater
Auckland, New Zealand ATV

INTERNET MISCELLANEOUS HAM RELATED HOME PAGES

(list verified 06/01/00)

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

http://www.stevens.com/atvq	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.yahoo.com/Entertainment/television/Amateur_television	Listing of some of the available ATV home pages.
http://www.acs.ncsu.edu/HamRadio	General ham radio info- satellite track, call sign database etc.
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.qth.net	ATNA member listserver (click "select list" to subscribe)
http://www.ham-links.org	Ham Radio collection database
http://bro.net/explorer/part97.htm	FCC part 97 details. Look up the FCC regulations
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)
http://www.ham.net/lisats.html	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.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 liscense holders can be found

HAMFEST CALENDAR

This section is reserved for upcoming hamfests for as far in advance as we know about them. 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. I maintain some fliers that compile this list so for additional info Email me at towslee@ee.net. This list will be amended, as further information becomes available.

29 Oct 2000 Massillon ARC <http://www.qsl.net/w8np> Contact: Terry Russ, N8ATZ 3420 Briardale Circle Massillon, OH 44646
Phone: 330-837-3091 Email: marc.hamclub@juno.com Canton, OH

29 Oct 2000 Marion ARC Contact: Karen Eckard, N8KE 6583 South Street Marion, OH 43302 Phone: 740-499-3565
Email: meeke@gte.net Marion, OH

18 Nov 2000 Grant ARC <http://www.qsl.net/~n1djs> Dot Silman, KB8TQU 502 Waynoka Drive Sardinia, OH 45171
Phone: 937-446-2234 Email: huggee@bright.net Georgetown, OH

18-19 Nov 2000 Indiana State Convention Allen County Amateur Radio Technical Society <http://www.acarts.com> Contact: ACARTS/Fort Wayne Hamfest PO Box 10342 Fort Wayne, IN 46851 Phone: 219-484-1314 Email: jboyer@aol.com Fort Wayne, IN

14 Jan 2001 Sunday Creek AR Federation Contact: Russ Ellis, N8MWK 8051 Oregon Ridge Glouster, OH 45732 Phone: 740-767-2226
Email: scarf@hocking.edu Nelsonville, OH

28 Jan 2001 Tusco ARC Contact: Gary Green, KB8WFN 32210 Norris Road Tippecanoe, OH 44699 Phone: 740-922-4454
Email: kb8wfn@tusco.net Dover, OH

11 Feb 2001 InterCity ARC & MASER <http://www.maser.org> Contact: Dean Wrasse, KB8MG 1094 Beal Road Mansfield, OH 44905-1605
Email: deanwrasse@yahoo.com Mansfield, OH

25 Feb 2001 Hamilton County ARPSC <http://www.arpdc.com> Contact: William Tittle, KA8LAY 3038 Bracken Woods Lane Cincinnati, OH 44211-7338 Phone: 513-661-1805 Fax: 513-661-8558 Email: ka8lay@arrl.net Cincinnati, 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 10 minutes showing ATCO & W8RUT on four different screens.

Transmit antennas: 427.25 MHz - Dual slot horizontally polarized 7 dBd gain major lobe west
 1250 MHz - Diamond vertically polarized 12 dBd gain omni
 2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Receivers: 147.45 MHz for F1 audio input control of touch tones
 439.25 MHz for A5 video input with FM subcarrier audio (lower sideband)
 915 MHz for F5 video link data from remote sites
 1280 MHz for F5 video input
 2411 MHz for 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 8 dBd gain major lobe west
 915 MHz - DB Products vertically polarized 10 dBd gain omni
 1280 MHz - Diamond vertically polarized 12 dBd gain omni
 2411 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Input control:	<u>Touch Tone</u>	<u>Result (if third digit is * function turns ON, if it is # function turns OFF)</u>
	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)

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 01#	Channel 2	915 MHz scan enable
	03* or 01#	Channel 3	1280 MHz scan enable
	04* or 01#	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	Equipment room camera (select 001 when finished viewing camera so repeater will shut down)

MEMBERS AS OF 15 October 2000

AA8XA	Stan Diggs	2875 Southridge Dr	Columbus	Oh	43221-3011	sdiggs4590@aol.com
K8AEH	Wilbur Wollerman	672 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
WB8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	Oh	43147	kc8bni@amsat.org
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	Oh	43065	210-0551 dale.elshoff@usiny.mail.abb.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	Oh	43125	491-8198jbusic@copper.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	Oh	42616	419-691-1625
WA3DTO	Rick White	5314 Grosbeak Glen	Orient	Oh	43146	877-0652wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	Oh	43026	876-6033wb8dzw@aol.com
W8EHW	Foster Warren	P.O. Box #32	No. Hampton	Oh	45349	
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	Ky	40511	606-253-1178ks4gl@juno.com
W8GUC	Reuben Meeks	428 Lewiston Road	Kettering	Oh	45429	937-294-0575rcmeeksjr@mics.net
KB8GUE	Ron Piatt	154 Kennedy Blvd PO box 200	Leesburg	Oh	45135	yonkb8gue@webtv.net
KA8HAK	Jim Reese	1106 Tonawanda Ave	Akron	Oh	44305	
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	Oh	43026	777-4621
W3HMS	John Jaminet	912 Roberts St	Mechanicsburg	Pa	17055-3451	w3hms@aol.com
W8JND	Richard Knowles	573 Plaza Drive	Circleville	Oh	43113	477-8132
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	Oh	43221-5207	mjgilbert@wcom.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	Oh	43223	276-1820n8kqn@juno.com
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	Oh	45331	513-548-2492walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	Pa	17603-9563	hdeverter@redrose.net
KC8LOW	Bob Harmon	831 McDonell Dr	Gahanna	Oh	43230	478-2193kc8low@netscape.net
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	Oh	43123	614-871-0751phumphries@iwaynet.net
WB2LTS	Manny Diaz	8 Pearl Ave	Huntsville	Ny	11742-1711	
KC8LZC	Tom Walter	9176 Axe Handle Rd	Milford Center	Oh	43045	937-349-6645
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	Oh	45660	ka8mid@qsl.net
N8NT (Ex KF8QU)	Bob Tournoux	3569 Oarlock Ct	Hilliard	Oh	43026	876-2127 rtournou@columbus.rr.com
WD8OBT,KB8ESR	Tom Camm & sons	1634 Dundee Court	Columbus	Oh	43227	860-9807
N8OCQ	Robert Hodge	PO Box	Columbus	Oh	43223	875-7067
N8OPB	Chris Huhn	146 South Hague Ave	Columbus	Oh	43204	279-7577
W6ORG,WB6YSS	Tom O'Hara & family	2522 Paxson Lane	Arcadia	Ca	91007-8537	626-447-4565 tom@hamtv.com
WB8OTH	Perry Yantis	1850 Lisle Ave	Obetz	Oh	43207	491-1498pyantis@compuserve.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	Oh	43201	421-1492jeasly@freenet.columbus.oh.us
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	Oh	43154	474-3884
NZ8R	Greg Radcliff	3311Kristen Ct	Columbus	Oh	43231	
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	Oh	43081	891-9273towslee@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	882-6527
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	Oh	43224	261-8583wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	Oh	45334	937-964-1185w8rvh@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	Oh	43119	614-878-0575comm21@coil.com
W8RXX	John Perone	3477 Africa Road	Galena	Oh	43021	740-548-7707
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	Mi	48144	
N8SFC	Larry Campbell		Galloway	Oh	43119	
W8SJV	John Beal & family	2899 Castlebrook Ave	Columbus	Oh	43026	876-9412johnbeal@columbus.rr.com
W3SST	John Shaffer	2596 Church Road	York	Pa	17404	w3sst@juno.com
W8STB	John Hey & family	894 Cherry Blossom Dr	West Carrollton	Oh	45449	937-859-5295heyjo@netzero.net
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	Oh	45040	
N8TCB	Bill Smith	657 Redford Ave	Columbus	Oh	43207	491-0709n8tcb@columbus.rr.com
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	Oh	43223	272-5784ed@fastpc1.com
WA8TTE	Phil Morrison	154 Llewellyn Ave	Westerville	Oh	43081	
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	Oh	43062-7756	740-927-1196 mixter.1@osu.edu
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	Oh	43338	419-947-1121
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	Oh	43162	879-7482
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	Oh	43212	297-1328wa8uzp@qsl.net
K7VE	John Hays	P.O. Box 95473	South Jordan	Ut	84095-0473	jhays@hays.org
WB8VJD	Rick Morris	203 Merton Street	Holland	Oh	43528	
KB8VUQ	Jack Wolff	2682 Hiawatha Ave	Columbus	Oh	43212	263-3092
N8WLT	James Neymeyer	2879 East Moreland Drive	Columbus	Oh	43209	237-2331
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	Oh	43062	740-927-3883hiramhunter@aol.com
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	Oh	43223	272-8266mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	Oh	43064	
N8YZ	Dave Tkach	2063 Torchwood Loop S	Columbus	Oh	43229	882-0771tkach@copper.net
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	Oh	45123	937-981-4007k154@bright.net
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	Oh	43125	836-3519ka8zny@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. Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC	Repeater trustees: Art Towslee WA8RMC
V. President: Ken Morris WA8RUT	Ken Morris WA8RUT
Treasurer: Bob Tournoux KF8QU	Dale Elshoff WB8CJW
Secretary: Rick White WA3DTO	Statutory agent: Rick White WA3DTO
Corporate trustees: Same as officers	Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL NEW MEMBER DATE _____ CALL _____

OK TO PUBLISH PHONE # IN NEWSLETTER YES NO HOME PHONE _____ INTERNET _____ Email _____

NAME _____

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, you may 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 (07/15/00).....	\$943.29
RECEIPTS (dues).....	\$110.00
OTHER INCOME (bank interest).....	\$ 7.97
Bank check cashing Charge.....	\$ (1.00)
April and June Newsletter postage.....	\$ (78.10)
CLOSING BALANCE (10/15/00).....	\$982.16

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.**
