ATCO NEWSLETTER

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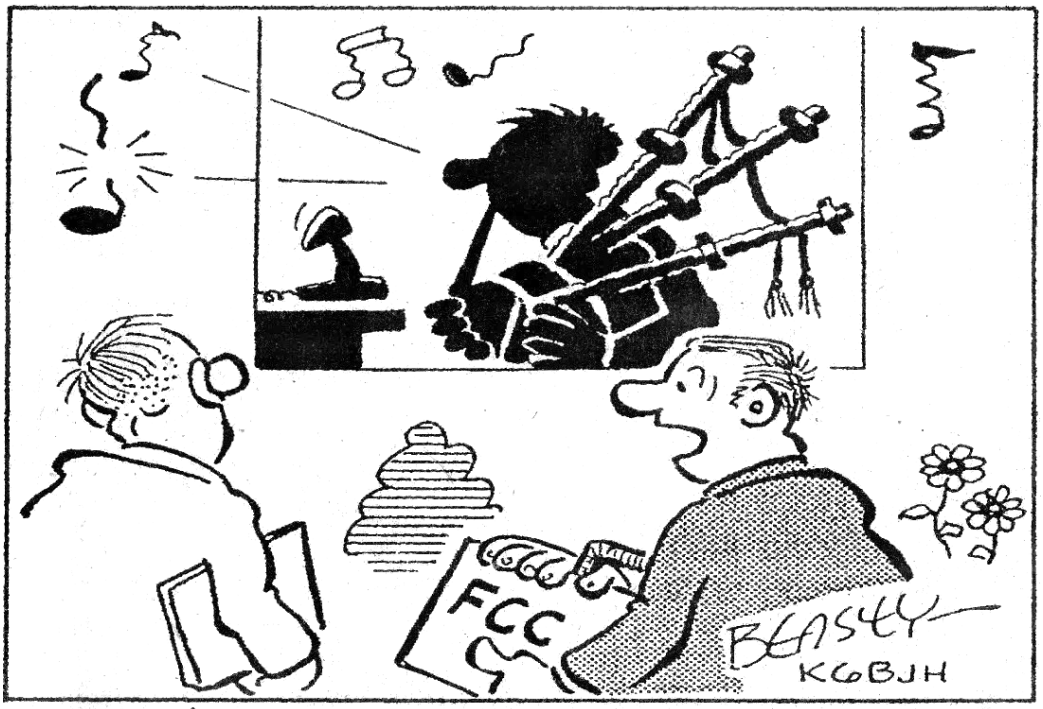
ATCO SPOTLIGHT TOPIC



WE CAN'T NAIL HIM FOR PLAYING MUSIC ON THE BAND, THAT'S NOT "MUSIC"---HOW ABOUT "EXCESSIVE REGENERATIVE FEEDBACK?"

ACTIVITIES ... from my Workbench

Hello again ATVers! Great day today, sunny, temp in the low 70s with low humidity. What more could I ask for? Well……my front lawn leaves could magically disappear. Looks like a lot of raking is in order for today. But I digress. Let's get back on topic.

For the ATV scene, there is not much going on. I haven't been to the ATCO repeater all summer. It's been working OK because I check the operation each time I go to my workshop. The 1268 and 423 DATV slide shows are operational so I use them to test the functionality of my VersaTune receiver from time to time. The 147.48 audio input is functional but it is rare to hear anyone using it. Occasionally, I hear an unknown short simplex conversation but they don't identify or when they do, it is unrecognizable. No one local has been heard for some time now.

Speaking of VersaTune, my new scanning DATV DVB-S / DVB-T receiver, progress is very slow. Bob and I are still working on it but because of Bob's work schedule, it's hard to spend concentrated time on the software. Hardware wise, I've got a working prototype with a few hand installed jumpers. As soon as I'm comfortable with it not needing added modifications, I'll make the necessary artwork corrections and create a new artwork. Then I'll send it out to have some more prototypes made. At least at this time we now have a working prototype so we're starting to work on the minor bugs. I am presently working to correct the existing PCB drawings and update the schematic so I'll be ready. I've just finished making a new "Net List" which is a 7 page text file of each pcb trace to all components. What a time-consuming pain!

I have, what I claim, is a break through on two levels. The first is a problem in the tuner module software interface created by the manufacturer which has a defect in the "signal locked" signal. It gives a false indication of a good signal under some circumstances. They agreed to fix that and are in the process of doing it. We now have revised software from them and are testing it.

Second, I found the existence of a new front end receiver chip for the tuner module that gives expanded frequency range for the DVB-S input. With this range, it will be possible to receive DVB-S signals from the Space Station on 2398 MHz as well as the 900 MHz band directly eliminating the need for a downconverter. That new range is 250 MHz to 2550 MHz. I'm working directly with the manufacturer in China on this. They already sent me 20 sample IC's to try. It is a "drop in" replacement hardware wise but needs new software. They provided that but it needs to be merged into our present demodulator software for a complete solution. The 2 China companies are working on the custom solution for us.

We are getting closer to producing a complete working product but it is taking much more time than expected. The software is the holdup but hardware is ready. I'm not going to predict when we will be ready for production because there have been too many missed predictions. So, hang in there…..

That's all for now. Speak up if you would like to have a group get-together soon for a pizza party or a scheduled event.
Regards,
WA8RMC

IBC 2024 SEES EUROPEAN DEBUT OF WORLD'S SMALLEST CAMERA

By George Winslow at TV Tech Magazine July 23, 2024

(Image credit: Proton Camera Innovations)

GARBSEN, Germany—Miniaturized camera specialist Proton Camera Innovations will be bringing Proton Cam, which the company bills as the world's smallest broadcast camera, to the IBC Show, Sept. 13-16, at the RAI Amsterdam Convention Center.

The camera, which was first shown at this year's NAB Show, will be making its European debut. During the show, Proton said its team will not only demonstrate the remarkable technical specifications of the camera, but also highlight the wide range of applications in which it has already been implemented.

High-profile sports applications have been one of the most popular, the company reported. These have included a number of global mountain biking events and a range of competitions in which the production team has sought to leverage live drone footage to capture in-the-moment action.

Indeed, since its launch, demand for the camera has been so pronounced that Proton have decided to add two further additions to the range, which will be announced nearer to IBC, the company reported.

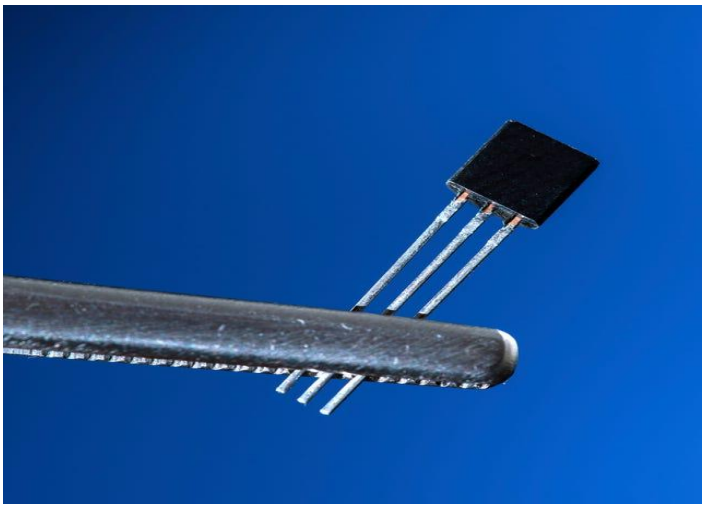
Speaking of their attendance at IBC, Marko Hoepken, CEO for Proton, said: "The last year has been a whirlwind, and there is no sign of the pace slowing down. Indeed, with the popularity of the Proton Cam since its launch, we're working hard to bring our next two cameras to market, and we'll be excited to showcase them at IBC. One area where we have experienced high demand is in the cinematography market, where the tiny size and negligible weight of the Proton Cam allow for seamless integration with drones. This means that operators can choose a drone based on maneuverability and performance whilst still achieving broadcast quality images, rather than being forced to compromise with an integrated camera drone, which is optimized neither for flight nor for image capture. The Proton Cam substantially changes the game in this field".

Measuring just 28mm x 28mm and weighing only 24 grams, the Proton Cam is not only tiny in size, but offers technical specifications which outstrip those of its competitors, the company said.

In addition to the extremely low 2.5W power consumption, it uses 12-bit sensor technology and advanced chip technology for superior image quality and dynamic range, with a 97° wide-angle view, optional lenses from 70° up to 124° and excellent low-light performance without distortion. Proton Cam also includes a tally light and stereo audio, a feature rarely offered on miniaturized cameras, making it ideal for both spontaneous action capture and directed productions.

SCIENTISTS MADE TRANSISTOR SURVIVE 100 BILLION SWITCHES

By Darren OrfPublished: Aug 15, 2024 10:00 AM EDT



In a 2021 study, scientists at MIT described a new boron nitride material that could be faster and more resilient than your typical computer components.

Now a new study from the same MIT lab used that new material to create an ultrathin transistor that shows no signs of degradation even after 100 billion switches. Although a promising breakthrough for building next-gen computers, creating these complicated devices *en masse* remains a challenge.

The invention of the transistor in December 1947 is one of the hallmark moments in humanity's technological history, right up there with Maxwell's equations and Alessandro Volta's battery. These crucial components are at the heart of our technology-driven society, switching the electrical supply from "on" to "off" (aka 1s and 0s) and vice versa. In fact, they're so important that they're the most manufactured artifact in human history with at least a dozen *sextillion* of them existing in the world today. With a technology so ubiquitous, it makes sense that any breakthrough that improves these miniscule machines merits some excitement, and a new study from MIT argues that researchers are onto something big. By creating a new kind of transistor using an ultrathin ferroelectric material made from boron nitride, the team used its unique electrical properties to create a super-fast, extremely tough, and impossibly thin component that could make machines faster and more energy-efficient. The results of the study were published in the journal *Science*.

"In my lab we primarily do fundamental physics," MIT's Pablo Jarillo-Herrero, a co-author of the study, said in a press statement. "This is one of the first, and perhaps most dramatic, examples of how very basic science has led to something that could have a major impact on applications."

Jarillo-Herrero first reported the promise of this boron nitride material in a 2021 paper also published in *Science*, but in this new study, the team actually puts the theory to work. There are a couple properties that make this boron nitride material so promising. First, its ferroelectric nature, meaning its polarization can be reversed in the presence of an electric field, is useful for encoding information while also remaining stable over time. The second is the parallel arrangement of its atomically thin sheets, which isn't an arrangement that occurs in nature. In bulk, these sheets are instead rotated 180 degrees, but when they're parallel, as in this experiment, one layer of the material slightly slides over the other by a few angstoms (or the width of a few atoms), which alters the position of the boron and nitrogen atoms and switches their charges. While that's particularly useful for a transistor, it also comes with *another* remarkable ability—the device seems immune to the wear-and-tear issues that's plagued similar materials. "So the miracle is that by sliding the two layers a few angstroms," MIT's Raymond Ashoori, a co-author of the study, said in a press statement, "you end up with radically different electronics. [And] nothing wears out in the sliding. Each time you write and erase a flash memory, you get some degradation. Over time, it wears out, which means that you have to use some very sophisticated methods for distributing where you're reading and writing on the chip." The team estimates that the transistor is capable of switching 100 billion times without degradation, meaning this concept of selective storage on a chip would essentially become obsolete.

However, there's an ocean of difference between creating one ferroelectric transistor in a lab and mass-producing a *sextillion* of these puppies for distribution around the world, and Ashoori notes that the production side of things is daunting but says "if people could grow these materials on the wafer scale, we could create many, many more." This study shows that the technological revolution kickstarted in 1947 is still going strong in laboratories around the world, now we just have to figure out how to actually manufacture these tiny, world-changing wonders.

W9CWM FOLD-OVER ANTENNA PROJECT

W8CWM Bill McCoy has been working diligently, welding and cutting metal in his efforts to design and fabricate a fold-over-antenna mast project for his M2Antenna that he has purchased. Once complete, the mast support structure (see photos) will allow for raising and lowering the mast sections with an electric winch. **As this is still a work in progress**, he hopes to possibly finish it within the next 3 to 7 days. I will be providing more photos, as Bill nears completion with the project. See pictures below left.

W8CWM's fold-over tower build is completed!

The tower is self-supporting and uses an electric winch to raise and lower the mast. He elected to purchase an M^2 18 element 70cm Yagi and his antenna is now at about the 40 ft level. It takes about two minutes to raise and lower the mast. He built/welded the supporting frame. He put the finishing touches on the tower over the weekend. The configuration surely makes getting to the antenna much easier! No Climbing Belt required!
…AH2AR

NEXTGEN TV ADVOCATES EXPRESS ‘DEEP CONCERN’ OVER FUTURE OF ATSC 3.0 PRODUCTS

By Tom Butts (See TV Tech Magazine 8/26/24 for complete article)

(Image credit: ATSC)

Pearl TV told a U.S. Court of Appeals this week that it has “deep concern” over the future availability of TV sets and devices that support the ATSC 3.0 standard because of LG’s exit from the 3.0 market in the U.S. last year after it lost a court case against Constellation Designs over a patent dispute.

In an amicus brief filed with the U.S. Court of Appeals in the case of “Constellation Designs, LLC v. LG Electronics Inc.,” Pearl, a consortium of broadcasters, manufacturers and associations promoting ATSC 3.0 (aka “NextGen TV”) told the court that it feared that “other major TV manufacturers will follow LG and pull their products off the market, if the decision on damages from the trial court is allowed to stand.”

In 2023, LG Electronics, which, along with Samsung, was one of the companies that worked on developing the ATSC 3.0 standard—a next generation broadcast standard that combines traditional broadcast with IP—announced that it would no longer manufacture or sell TV sets that receive NextGen TV in the U.S. because it lost a patent dispute with Constellation Designs.

LG filed its appeal in May.

That decision, LG said at the time, “was not made lightly, because LG has been a vocal ATSC 3.0 advocate, a strong supporter of local broadcasters, and a leading developer of television products with the latest NextGen TV technologies.”

Transition to 3.0 'Could End in Futility'

LG still sells 3.0 sets in South Korea, one of several other countries that has adopted the standard. In the U.S., consumers can still purchase 3.0 sets from Sony, Samsung, Hisense and TCL. However, in Pearl’s amicus, it feared that these companies could follow suit if the appeal stands.

“[A]ll this effort by the broadcast industry to deploy NextGen TV and by the Federal Communications Commission to approve the standard and guide the industry through the transition, will end in futility if consumers cannot purchase ATSC 3.0-equipped TV receivers,” Pearl said.

Pearl told the court that while the industry took steps to guard against such patent disputes in advance of the rollout of consumer TV sets starting in 2020, Constellation Designs’ actions went against the norm.

“[T]his patent pool system is working to facilitate the deployment and transition of NextGen TV,” Pearl said. “Pearl TV . . . views the patent pool system for NextGen TV as well functioning, and has observed no significant issues or complaints by key members of the ecosystem. “Until the Constellation Designs decision on appeal here, the patent pool system led to dozens of TV set models being introduced into the market at multiple price points (many well below $999) and widespread adoption of the NextGen TV technology by the broadcast industry.

“The decision at issue in this case disrupted that functioning market in a manner that greatly concerns the broadcast industry and any person interested in seeing the transition to NextGen TV be successful and completed.”

Judgment Was 'Skewed and Exorbitant'
Pearl also took issue with the financial arrangements, noting that the size of the judgment prompted LG's immediate exit from a burgeoning market.

"[The trial court] returned a verdict in favor of Constellation Designs, awarding it $1,684,469.00 U.S. Dollars for past infringement," Pearl said. "More troublingly, the judgment also ordered LG to pay Constellation Designs $6.75 for every future LG TV that used Constellation's patents. This result immediately halted LG's NextGen TV enterprise."

Pearl noted that the judgment was "skewed" and "exorbitant," distorting the SEP process. "Standard Essential Patents" are those patents identified as crucial to the deployment of a particular technology standard.
"The largest patent pool, Avanci Broadcast, charges $2 to $3.00 for 11,000 patents, including nine hundred SEPs which are critical to NextGen TV," Pearl said. "Another patent pool charges roughly $.30, twenty-two times less than Constellation's rate, while offering 90 SEPs, more than twenty-two times the number of SEPs. The jury's verdict on damages is extreme and risks disrupting the entire patent pool market for ATSC 3.0, which otherwise has functioned smoothly for broadcasters, receiver manufacturers, and consumers.

"The consequences of the judgment may reverberate beyond one manufacturer. The verdict may encourage patent holders to leave patent pools," Pearl continued. "Instead of negotiating with manufacturers for competitive rates and waiting for their assets to appreciate as NextGen TV takes off, some may prefer to charge higher fees now. Doing so would deter manufacturers from making TVs that are compatible with NextGen TV."
With the future viability of ATSC 3.0 on the line, Pearl warned that the verdict could discourage further development of new 3.0 products and the standard itself.

"Without NextGen TV-television sets in the market, viewers will not be able access NextGen TV, nor will broadcasters have any incentive to implement the myriad improvements that the new standards boast."
"Thus, the judgment's ripple turns into a cascade," Pearl concluded.

Tom Butts
Tom has covered the broadcast technology market for the past 25 years, including three years handling member communications for the National Association of Broadcasters followed by a year as editor of Video Technology News and DTV Business executive newsletters for Phillips Publishing. In 1999 he launched *digitalbroadcasting.com* for internet B2B portal Verticalnet. He is also a charter member of the CTA's Academy of Digital TV Pioneers. Since 2001, he has been editor-in-chief of TV Tech (www.tvtech.com), the leading source of news and information on broadcast and related media technology and is a frequent contributor and moderator to the brand's Tech Leadership events.
(For complete article, see TV Tech Magazine 8/16/24)
…WA8RMC

MEDIAPROXY ADDS A3SA COMPLIANT DECRYPTION FOR ATSC 3.0

By George Winslow 8/27/24 (For more information please visit: www.mediaproxy.com)

The compliance and monitoring specialist has worked closely with the A3SA to develop software decryption capability to deliver integrated NextGen TV tools

(Image credit: Mediaproxy)

MELBOURNE—Mediaproxy has announced that it has been officially certified by the ATSC Security Authority (A3SA) to provide decryption for NextGen TV broadcasts in the U.S. as part of its LogServer compliance monitoring and Monwall multiviewer systems.

The certification means that broadcasters can now implement comprehensive software-based tools to monitor and analyze ATSC 3.0 streams for compliance purposes that are not tied to or reliant on bespoke hardware devices. The ATSC 3.0 standard delivers high levels of encryption to ensure content accessed through broadcasters' websites is more secure, which in turn protects the viewers. By incorporating A3SA security protocols into the core of its LogServer engine, Mediaproxy is able to provide broadcasters with a cost-effective option to monitor both encrypted to-air and off-air signals.

"Mediaproxy is a long-standing member of the ATSC, and we have hundreds of TV stations in the US that rely on our technology," commented Mediaproxy chief executive Erik Otto. "Because of this we saw it as our responsibility to not only provide a comprehensive software-based toolset around ATSC 3.0, but also a seamless way to deal with decryption. Over nearly 25 years, Mediaproxy has established a reputation for pioneering new compliance and monitoring technologies and this new, extremely exciting development is the latest in a long line of such achievements. Without precedent, we have worked closely with the A3SA over the past 12 months to make this happen. The result is a simple software-based and cost-effective path forward for broadcasters offering

NextGen TV services."

For to-air and hand-off monitoring, an on-premises LogServer system is able to simply take the encrypted STLTP (Studio to Transmitter Link Transport Protocol) output of the packager directly from the stream. This guarantees confidence in what is sent to the transmitter straight from the local IP network, the company reported.

In off-air monitoring situations, it is possible to use inexpensive and familiar integrated receiver/decoders (IRDs) that do not provide decryption but do have outputs of the encrypted IP streams through DASH/ROUTE (Dynamic Adaptive Streaming over HTTP/Real-time Object delivery over Unidirectional Transport). This enables ATSC 3.0 compliance on IRDs for streaming platforms such as HDHomeRun, with LogServer handling the DRM aspects for all channel sources, Mediaproxy said.

The new ATSC 3.0 security feature is also available on Mediaproxy's ever-expanding Monwall hybrid multiviewer, which accommodates low-latency monitoring of both encrypted outgoing and return signals. Alongside the features on Monwall and LogServer, Mediaproxy has developed an extended toolset for advanced IP packet and table analysis of live broadcast streams or PCAP (packet) captures, which can be accessed via easy-to-use user interfaces.

For more information please visit: www.mediaproxy.com.

NARROW BAND ATV OPERATION ON 10 METER BAND????

There has been talk lately about the possibility of DATV narrow band operation on 10 meters. Pioneering this area is Grant, VE3XVT working on special data compression techniques to reduce the signal bandwidth. This process takes a lot of time investigating possible methods to eliminate the theories that fail to produce satisfactory results. While work continues in the design area, it is also important to know what the FCC says about this. The details that follow suggest that the overall solution is not a simple one. There are numerous individuals that have their own spin on the subject.

The individual responses are varied so it is easy to develop your own feelings as to whether the result will produce a new method of communication on this band. It is hard to please the FCC in this area even though the 10-meter band is seldom used in most areas. It will take a lot of well-planned work here. In any case, the below comments illustrate how people feel about this. Study them and form your own opinion. Read on……
…WA8RMC

Jim KH6HTV asked the US FCC to know if it's permitted to traffic in NBTV on 28 MHz, with larger spectrum that we usually use on that band for SSB or FM)

Dear Jim,
In answering to your inquiry about NBTV:
On the NBTV side, the situation is therefore blocked, the legislation in force does not allow us to test on shortwave what we are developing. Except in Switzerland (and may be others countries), which authorizes it as long as we do not go beyond the limits of our bands and do not make QRM to other users of the said band.

michel hb9afo www.hb9afo.ch responds with some very interesting comments:
It is a bit superfluous to say it on this forum which brings together practitioners in ATV/DATV, but I still recall the usefulness of the research that some of us do, such as Grant VE3XTV. In DATV, we use the protocols used by television professionals, DVB-S and DVB-T.

DVB-T (T for Terrestrial), used for terrestrial TV broadcast (TNT), is not applicable as is to shortwave traffic because its bandwidth is much too wide, 1 MHz minimum for consumer receivers, most of which do not go below 4MHz. On the other hand, on 430 MHz and above, this protocol is excellent because it is sovereign against multiple reflections (multipath) that we have in mountainous countries or in mobile traffic in cities.

DVB-S (S for Satellite) is more flexible in this regard since starting from professional software libraries, Jean-Pierre F6DZP and F5OEO developed his Minitiouner which allows to traffic with very narrow bandwidths compared to those used by professionals, a few tens of kHz against several MHz for the pros. We can never repeat it enough, this development was revolutionary because it allowed us to traffic in DVB-S in our bands without going beyond their limits.

The problem is that we come up against a limit in the lowering of the bandwidth, called SR (Symbolrate) in our DATV jargon. The more we lower it, the more time it takes to lock on to an incoming signal which means that the receiver no longer has time to lock between two QSB peaks. This can be seen very well on 10 meters. Those who have used it all remark that from time to time we receive an image, or even exceptionally a small piece of animated images, because the synchronization takes too much time. If compression-decompression took less time, it would be the image cuts that would be the exceptions, not the images themselves.

This is what I also notice when I make DATV QSOs in reflection against Mont Blanc (highest European mountain) on 10 GHz. I visualize the incoming signal with my SDR# and I can clearly see its variation in amplitude depending on the degree of the reflections on the snow and ice. Mainly it is the rotations of the polarization that slowly vary the signals received. But also, the multiple reflections that induce distortion, which DVB-S does not

like. From my point of view, all this comes from the professional DVB compression protocols that were developed for satellite transmissions where there is neither QSB nor multipath.

What we also observe is that the more we reduce the SR, the more time synchronization takes. On a "choppy" band, on shortwave for example, it is therefore in our interest to use a relatively high SR, 300 kHz/s/s for example, but then it takes up too much space. Jean-Pierre's Minitiouner allows us to lower the SR to a minimum of 18 kHz, which is perfectly compatible with the width of our high bands on deca. On the other hand, the locking becomes so slow that an image has just enough time to appear that the QRM and QSB desynchronize it.

This defect comes from two things:
1) The power of the PCs that we use for the compression/decompression of DVB-S images is not sufficient.
2) DVB professional protocols were not developed for narrow bandwidths and take too long to do their job.

Conclusion:
We can't hardly force DATV users to buy super-powerful computers, which would cost more than their houses. We must therefore optimize the professional protocols that we use for low SR. And this is precisely what Grant VE3XTV is trying to do by developing his NBTV protocol (Narrow Band TV).

Of course, space professionals have already developed usable narrowband protocols but they are proprietary "gas factories" that are hardly compatible with our modest needs as radio amateurs. Too complicated, too expensive and too secret.

We must therefore salute those of us (I do not put myself in the "we") who work on this subject, for the greater benefit of all of us. And I think that our delegates to the major ITU conferences could use this argument to ask to open the possibility to experiment in our bands what we are developing. If there are no major constraints, military for example, I do not see what could incite our supervisory administrations to deprive us of this possibility.

Said in all modesty: it is a matter of scientific research, which fits perfectly with the definition of a radio amateur by the International Telecommunications Union.
73 michel hb9afo
www.hb9afo.ch

Well said. So, let's see what others say about this in regard to what the FCC says is allowed in today's standard WA8RMC.

What restrictions do US hams think Part 97 imposes on DATV transmissions in 29 MHz ? As I read Part 97. There are no restrictions on the bandwidth of an Image transmission, that has been the case for decades and are no restrictions on the number of carriers a transmission can have. Last year's decision by FCC to finally accept ARRL's long-standing request to impose a bandwidth limit on Data transmissions shouldn't impact Image. "Data" and "Image" transmissions are not the same thing in FCC regs, they have different FCC definitions.

I'm not sure what benefit a general enquiry sent to FCC will give. In practice any such enquiries are answered by an office clerk who does not have the authority to interpret FCC policy. The typical response they give is to point the questioner to the relevant part of Part 97 and tell them to read it, they unlikely to give clear Yes or No answers.
73 Trevor M5AKA

(97.307(f)(2) is the pertinent rule) "No non-phone emission shall exceed the bandwidth of a communications quality phone emission of the same modulation type"This rule applies to all bands below 420 MHz. We can't even transmit DTV on 6-meters, even though it's 4 MHz wide.
Ron W6RZ

Gents,
Strange FCC rules Indeed! In the UK except for the 5 MHz band where double side band is limited to 6 kHz we don't have any such limitation apart from the band-plan convention, which is not a license condition. Is there anything in your license to say how many modulated carriers you can transmit at once? COFDM? Each carrier is very low bandwidth and can be well within the bandwidth required for voice. Just that you're going to have several hundred transmissions at once.
Justin Cockett

Is "bandwidth of a communications quality phone emission of the same modulation type" later defined? What if one is using a VERY wideband phone emission, of the same modulation type? Who uses digital ATV modulation for phone? How about just using a different modulation type.
Kurt

The key words there are "phone emission of the same modulation type". It isn't a fixed bandwidth limit. The permitted bandwidth can vary depending on the modulation scheme used. You are not prohibited from using a modulation scheme that occupies a wide bandwidth. There was discussion of this matter at the turn of the century. The conclusion was wider phone and image transmissions were permitted on HF for ODFM type transmissions. You could have a 250 kHz wide transmission centered on 29.150 MHz comprising 192 carriers each one running at 600 or even 1200 baud and use it to transmit Voice. It is not an "independent sideband emission" so it isn't affected by the restriction in the second part of 97.301(f)(2). Given nothing prohibits wideband voice emissions you can do the same for Image.
73 Trevor M5AKA

Looks good...
The only limitation to unspecified digital codes are with intentionally sending signals to and from countries who do not allow the use of these codes We aren't in control of propagation. The rest of the world will have to ignore the signals. Kind of like that old rule in CB about not communicating more than, what was it, 150 miles? Maybe it was 10. I can't remember, exactly. As for sending from, that's a "them" thing. and agree to a set of symbols so not to be thought of or being misconstrued as encrypted content (no scrambling allowed)"

In the late 90's, and early 2000's, there were a few crypto nets in the Ham bands, using decommissioned military, NSA, and proprietary modes, et cetera. Another "technicality", it wasn't done with the intent to obscure, the keys were readily available, on the web, in the forums, and announced openly before the net. Kind of like CW. If you don't know it, it's cryptic. I recall some fuss that the ops from the EU weren't allowed to play.
Kurt

97.307(f)(13) only applies to the 219-220 MHz band.
Ron W6RZ

On 9/16/24 15:55, joelwilhite1 via groups.io wrote:
Hello,
I thought my reading skills were being tested on this one and thought I had flunked 3rd grade. The FCC rules in general are prescriptive (don't do stupid), but in some cases restrictive (don't cross this line). I went back into the text of the US 47 CFR part 97.307 (Emission standards) and believe the sub section people are stuck on relates to "phone type" emissions where many types of emissions are possible under 97.307. The main premise of subsection 307 is to prescribe or direct US amateur operators to not do stupid things and why in paragraph (a) it states...

- **(a)** No amateur station transmission shall occupy more bandwidth than necessary for the information rate and emission type being transmitted, in accordance with good amateur practice....meaning, be nice and don't

splatter all over the place. And to that point, paragraphs b, c, d and e all relate to the classification and restrictions of spurious emissions. Then in paragraph f, the regulations go into the various standards and limitations of emission.

(f) The following standards and limitations apply to transmissions on the frequencies specified in 97.305(c). (now jump to paragraph 2)
(2) No non-phone emission shall exceed the bandwidth of a communications quality phone emission of the same modulation type. The total bandwidth of an independent sideband emission (having B as the first symbol), or a multiplexed image and phone emission, shall not exceed that of a communications quality A3E emission.
I interpret this paragraph to do one thing, constrain "non-phone emission" (i.e. not A3E) meaning a modulated carrier, "of the same modulation type" (i.e. phone) used to carry multiplexed image data (think SSTV) and phone (voice) in a waveform not to exceed the same size as an A3E carrier.Where multiplexed image (not plural) and phone emission is clearly citing the case for SSTV and phone being sent on the same frequency, but time division multiplexed, first phone, then SSTV, then phone, etc.

Moving forward...
While paragraph 2 constrains digitally modulated voice carriers in HF, paragraph 13 defines high speed data in HF. Please take note the last sentence.

(13)A data emission using an unspecified digital code under the limitations listed in 97.309(b) RTTY and data emission codes also may be transmitted. The authorized bandwidth is 100 kHz.

I interpret paragraph 13 to mean, if we build a method for modulating symbols to transmit encoded video (moving images) and audio (phone), multiplexed together into the same information channel, and agree to a set of symbols so not to be thought of or being misconstrued as encrypted content (no scrambling allowed), then we are safe to use this technique as long as we do not exceed a total of 100 kHz to carry those symbols, or in this case as many sub carriers in an OFDM that will fit inside the 100 kHz. The only limitation to unspecified digital codes is with intentionally sending signals to and from countries who do not allow the use of these codes and most of those folks are chanting "death to America".

We have a saying over here, "I ain't got time for that XXXX. But have a nice day!

The beautiful part about "unspecified", it's the literal definition of an open-door policy so we aren't bound to using old codes or symbol definitions! More to the point, amateur operators are also NOT being restricted to transmit with "Specified" codes as would be those published in a number of journals or publications like DUBUS or QEX for example. Those sources can be cited as a way to specify a method to promote use cases for experimentation as we don't formally meet to build standards for ham radio use, we simply leverage the tools of those before us and invent new stuff. Like Grant, we haul off and invent things and look to the rules for guidance. If the experiment violates the rules (or blows up) we go back to fix it until it works. And when the rules are obscure or worse, restrictive, we get busy in the emails and letter writing campaigns to help convince others to facilitate change for the good the hobby and or to advance the state of the art.

If you believe I'm not reading this correctly or I'm completely out of my mind,OK. I'm from Missouri, show me.
Best regards es 73,
Joel Wilhite KD6W

Joel KD6W wrote
(13) A data emission using an unspecified digital code under the limitations listed in 97.309(b) RTTY and data emission codes also may be transmitted. The authorized bandwidth is 100 kHz.”I don’t believe (13) applies to Image emissions. Part 97 regulates by Content, the type of information that is being carried e.g. Phone, Image, Data, Telegraphy. Take modes such as M-17 or D-Star, where the Voice Content is encoded and transmitted as a

digital stream. Are they classed as a Phone mode or a Data mode? They are Phone modes so any restrictions that are specific to Data modes do not apply to them.
73 Trevor M5AKA

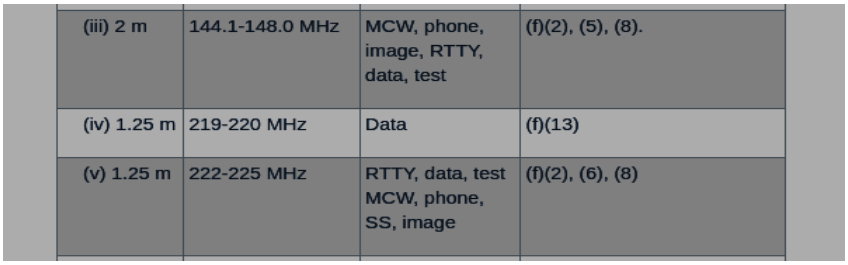
M-17, D-Star, Free DV are “phone” modes and found only in the voice/phone band segments here in US. Of course, a lot of discussion and cussin’ has been made over this definition of the rules. The SSB-ers don’t want what they consider a data mode in “their” segment of the band and the CW ops don’t want it in “their” segment either.
Mel, K0PFX

It doesn’t really matter anyway; the rest of the world can enjoy DATV on 10m and 6m while the US looks on. Literally.
Mike

Hey Ron,
Please share with us where it states 97.307(f)13 is restricted to (or rather only applied to) the 220 band?
And if possible, why would they have written such a rule to begin with?
Joel KD6W

The numbered paragraphs of 97.307(f) are for the table in 97.305(c). The only band that specifies 97.307(f)(13) is 219 to 220 MHz.

It's just saying you can run 100 kHz wide data on that band with no baud rate restriction.
Ron W6RZ



(iii) 2 m	144.1-148.0 MHz	MCW, phone, image, RTTY, data, test	(f)(2), (5), (8).
(iv) 1.25 m	219-220 MHz	Data	(f)(13)
(v) 1.25 m	222-225 MHz	RTTY, data, test MCW, phone, SS, image	(f)(2), (6), (8)

It doesn’t really matter anyway, the rest of the world can enjoy DATV on 10m and 6m while the US looks on. Literally. Mind you, I have not been a big, flag waving, NBTV or die advocate, I truly wish them the all the best of luck and suggest the more the merrier. You blokes have had us drooling over here with your geo sat transponder years ago after it first launched. Most of us would be happy operating 1Msym/s DVB S2 any day, anywhere, anytime.

Ok, got it. Thank you. I admit I forgot to look at 305, I misspoke earlier. As to WHY they would enable this tease is another forehead slapper.
Does it seem like we are missing a whole section dedicated for the classification of "video" in the CFR?
In my opinion, "image" doesn't cut it.

Yes, sorry, but if the FCC are the blocker, then there isn’t much the rest of us can do about that and the restriction doesn’t apply to other administrations, so I would not let this hold up hams from other countries experimenting. Even if they can not transmit, it doesn’t prevent US hams from receiving signals. As it happens, I, M0DTS and G4XAT and a few others from the UK have sent signals across the Atlantic in late 2022. John, K0ZAK in Baltimore managed to receive a few frames and a 10s of video of me walking across my shack. The SNR was good but the enemy was multipath as expected, we were using DVB-S and had to use a very low symbol rate, 18ks/s so we could monitor our reception via KiwiSDRs and SDRAngel. It was reported in CQTV278. This was all prompted by receiving that weird Ney York 10m repeater that has a doorbell for its K. We knew that multipath would be a problem, experiments with wider bandwidths were fruitless but at that time we didn’t have an OFDM alternative. Once we do, we had better get on with it as the solar cycle won’t wait. Attached a couple of images from the CQTV article. Multipath is very obvious, but occasionally it minimized enough to get a lock. I also tried DRM using DREAM’s TX functionality, but that wasn’t able to send video.
Mike

Mike, the FCC isn’t blocking it, it’s just Part 97 takes a lot of reading and some have mistakenly thought Digital ATV was a Data mode whereas under FCC regs it’s classed as an Image mode so any Data mode specific restrictions don’t apply. So 250 kHz bandwidth TV on 29.150 MHz seems okay.
73 Trevor M5AKA

Trevor, Can you show me anything in the FCC rules saying a 250 KHz bandwidth signal of any mode is OK on 29 MHz? "Seems okay' doesn't cut it as a defense if the FCC were to come knocking at your door.
We went through this exact conversation 2 years ago when I was testing with M0DTS, G4XAT, and MJWG0.
The only updated info I've seen in this round is what started it, the ARRL response to Jim Andrews (KH6HTV) recent letter in his latest newsletter. ARRL's response stated in part 'ATV of the proposed bandwidth would not be permissible on the 10m band because it exceeds the allowable transmission bandwidth for amateur image signals which is 8 kHz (eCFR :: 47 CFR Part 97 Subpart D -- Technical Standards Section 7 Subsection f Paragraph 2). However, they went on talking about A3E and NFM/WFM mode signals (which NBTV is not) and neglected to discuss COFDM multi carrier signals at all. Do the rules apply to each individual carrier or the sum of them all?
I think the only 2 choices to really resolve this is
1) contact the FCC engineering folks and get an official ruling right from the source.
2) go ahead and transmit a NBTV video signal and wait for the knock at the door.
Personally, I'm not willing to go with the second option.
John K0ZAK

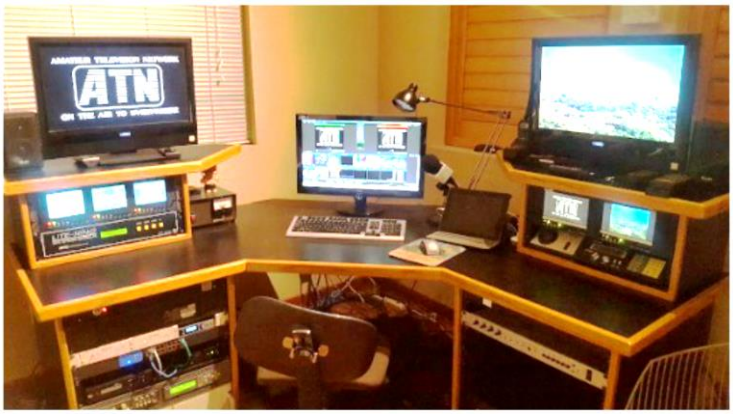
WOW!!!! Too much information you say? OK, but at least I let everyone say what’s on their mind, right or wrong. Bottom line, Grant will continue to see if he can develop a protocol with a narrower bandwidth. Jim will continue pestering the FCC for clarification and possibly rule changes to allow us to do what Hams do best…design and communicate. Maybe the ARRL will step up to the plate and speak for us. Heaven knows, individually, it’s a lost cause trying to speak to the FCC.
…WA8RMC

DATV QSO PARTY

QSO party with Peter & Don (insert)

"We celebrated our 12th DATV QSO Party in 2024," says Peter Cossins – VK3BFG. The 'party' first started between Art - WA8RMC with the Columbus Repeater, Don - KE6BXT and the Californian Network, along with myself and with our great ATV team with the Melbourne ATV Group. Art and Don anchored their Repeaters in the USA, and I anchored the Australian end. We had stations checking-in from Sydney and Hobart, as well as Port Pirie in South Australia accessing the Melbourne DATV Repeater VK3RTV.

The early days of linking distant stations, we linked via IP using Skype, then moved on to Zoom. Currently, we utilize our new SRT (Secure Reliable Transport) protocol at the VK3RTV repeater so ATV stations from around the world are able to access the VK3RTV Melbourne directly, which is the key Repeater at the Australian end. We are so excited to have Bill AB0MY in Boulder, Colorado, and Roland - KC6JPG in Los Angeles to utilized their extensive broadcast and network capabilities to the DATV QSO Party. It is a great event." -- 73 de Peter, VK3BFG



KC6JPG ATN Video Production Studio

"This year's DATV QSO Party is going to be better than ever." says Roland Hoffman, the Digital Systems Director and Net Control Operations for the Amateur Television Network. "Not only we will be featuring our ATV operators from their local repeater and our chapter stations utilizing our IP linking system, but we will experience for the first time to include video check-ins with our European amateur television operators that will be up-linking into the QO-100 satellite. The down-link will be linked into our "party-line" as we will witness the video transmission from the QO-100 satellite. It will be an experience like no other in amateur television." concludes Roland.

All licensed ham radio operators with an amateur television station setup are invited to participate with the largest amateur television party in the world. If the local ATV repeater is participating in the "party," the ATV'ers can operate directly with the participating local repeater system, and the RF from the repeater will be IP-linked into the VK3RTV repeater in Melbourne, Australia. Participating repeater systems and uplink system for this year's "party" so far includes but not limited to:

VK3RTV – Melbourne, Australia
WR8ATV – Columbus, Ohio, USA
W0BTV – Boulder, Colorado, USA
W6CX – Northern California, USA
W6ATN – Southern California, USA (6 ATV repeater systems linked)
W7ATN – Arizona, USA
WB9KMO – Mesa, AZ USA
QO-100 OSCAR Satellite

If your local repeater system is not listed, have your repeater trustee contact us and we can coordinate

an IP video streaming link from your repeater system into the VK3RTV Melbourne repeater so you can participate with us. Contact Roland – KC6JPG at kc6jpg@gmail.com and we can make this happen.
If you are a licensed ham radio operator and don't have an ATV station , you can still join in on the fun and festivities of the DATV QSO Party. You can participate with us on our ATN IP video insertion channel on our Whereby system at: https://whereby.com/atn-tv and you can check-in and participate with our chapter stations and be included into the "party."

Mark your calendar and come join us for the biggest amateur television party on the planet for the 12th Annual DATV QSO Party on Saturday, August 31, 2024 beginning at 00:00 UTC. It will be the ATV video party of the year!
How to Watch: You can watch the "party" through our streaming channels:
YouTube: *https://www.youtube.com/AmateurTelevisionNetwork*
https://www.youtube.com/@IanVK3QL
Facebook *www.facebook.com/AmateurTelevisionNetwork*
BATC: *https://batc.org.uk/live/w6atn*
About the Melbourne Amateur Television Group --- The Melbourne Amateur Television Group are ham operators that support the VK3RTV digital amateur television repeater in Melbourne Australia. The VK3RTV system is one of the first digital amateur television repeater system utilizing the DVB-T2 format with full bandwidth and full HD resolution. For more information about the Melbourne Amateur Television Group, contact Peter – VK3BFG at *pcossins@bigpond.com*.
About the Amateur Television Network --- The Amateur Television Network (ATN) is a series of amateur television repeaters throughout the Southern California, Nevada, and Arizona areas of the United States, making it possible for the amateur television operator to make contacts with other amateur television stations within the network coverage area. The ATN also provides an IP link for our chapter stations operating amateur television to check-in and communicate with other ATV'ers from around the world. For more information about the Amateur Television Network, contact Roland Hoffman – KC6JPG at: kc6jpg@gmail.com -- or -- check out their web site at: *www.atn-tv.com*

THROUGH HURRICANES HELENE AND MILTON, AMATEUR RADIO TRIUMPHS WHEN ALL ELSE FAILS

While some residents in hurricane-impacted areas can't send texts or make calls, amateur radio enthusiasts are helping communicate requests for help and messages between loved ones.

Photo-Illustration: Wired Staff; Getty

The morning after Hurricane Helene pummeled the eastern seaboard of the US, Thomas Witherspoon inspected the damage to his western North Carolina home. The night before, he listened to the wind whip down trees and snap power lines along the two-mile access road connecting his family to their few neighbors in Buncombe County.

Like the tens of thousands of other North Carolina residents, the power to Witherspoon's neighborhood was completely out. It was impossible to communicate with the house down the road, let alone anyone several miles away. Unable to send text messages or make phone calls, radio became the one form of communication left in rural North Carolina. After fixing what he could on his own property, Witherspoon, a lifelong amateur radio enthusiast, began distributing handheld radios to his neighbors.

"Amateur radio is one of those things you get into because of your love of radio communications and the technical aspects of it or the community and the challenges that you can overcome," Witherspoon says. "It's a lot of fun, but underlying all of that is this prime directive with amateur radio that it's always there as emergency communications when all else fails."

Other amateur radio enthusiasts have helped out as well. Last Tuesday, operators fielded requests for medications, like insulin, and announced when grocery stores, like Sam's Club, reopened. Most of the messages were to let friends and family know that they're OK. "Mom, your son is OK. No phone service. Happy birthday," WIRED heard a caller ask an operator to send his mother during a livestream of the broadcast.

Hurricanes have wreaked havoc on the United States over the past month. More than 200 people have been confirmed dead as a result of Helene and many more have gone missing, making it the most destructive US hurricane since Katrina in 2005. Nearly a week after Helene made landfall, cell service dead zones plagued the Carolinas, leaving thousands of residents unable to reach their friends, families, and even emergency responders. As Hurricane Milton builds in the Gulf of Mexico this week, radio operators in Florida are also preparing to launch their net—a group of operators communicating live over the air. Scott Roberts, an amateur radio section manager for northern Florida, said that operators in his area started checking their equipment and making plans to deploy to shelters as of Monday.

There are more than 1 million licensed radio amateurs in the US like Witherspoon and Roberts, according to a Federal Communications Commission spokesperson who spoke to WIRED last week. Some amateur radio bands are short bands, reaching only small communities of people, while others cover hundreds and even thousands of miles. When communication infrastructure fails, like cellular networks during a natural disaster, the FCC allows for amateur radio operators to assist in recovery efforts.

Gordon Mooneyhan, spokesperson for the American Radio Relay League, said he knows of three main repeaters being used to convey messages inside the disaster area from Hurricane Helene, including the Mt. Mitchell Repeater, which is located at the highest point in North Carolina at 6,600 feet and boosts localized radio broadcasts to a wider network. This is where Witherspoon read off supply requests and road closures.

Messages are sent digitally using what is essentially a modem, linking a computer to the radio and turning the messages into a form of high-speed morse code with the Winlink Global Radio Email system.

“You type the message, and it will automatically calculate the word count and send it to the next station,” says Mooneyhan. “The next station automatically sends back what the word count is supposed to be, so it’s all verified and there aren’t any errors.”

Whether a message out of the disaster zone is bound for a neighboring state or a family member in Asia, there are operators everywhere capable of getting it where it needs to go.

“You wanna go to Texas? They’ll find a net that’s taking traffic to Texas, sign in, relay the message, and deliver it,” says Mooneyhan.

As of Monday, telecommunications companies were still putting up temporary towers to restore cell phone connectivity in North Carolina. AT&T and T-Mobile have deployed mobile units where residents can drive to connect their phones to Wi-Fi and send messages. For many residents, the simplest method of reaching a loved one is speaking into a handheld radio.

Hurricane Milton grew into a category 5 storm on Monday, and amateur radio operators in Florida are already preparing to respond if the state’s communications infrastructure fails.

"Florida amateur radio operators are perfectly equipped to handle Hurricane Milton, even just after Hurricane Helene,” says Josh Johnston, the director of emergency management for the Amateur Radio Emergency Service. “They have the systems in place and have a well-refined action plan in each county, as well as at the state level. They're quite accustomed to busy storm seasons, and ready to provide critical information to served agencies as Milton comes through.”

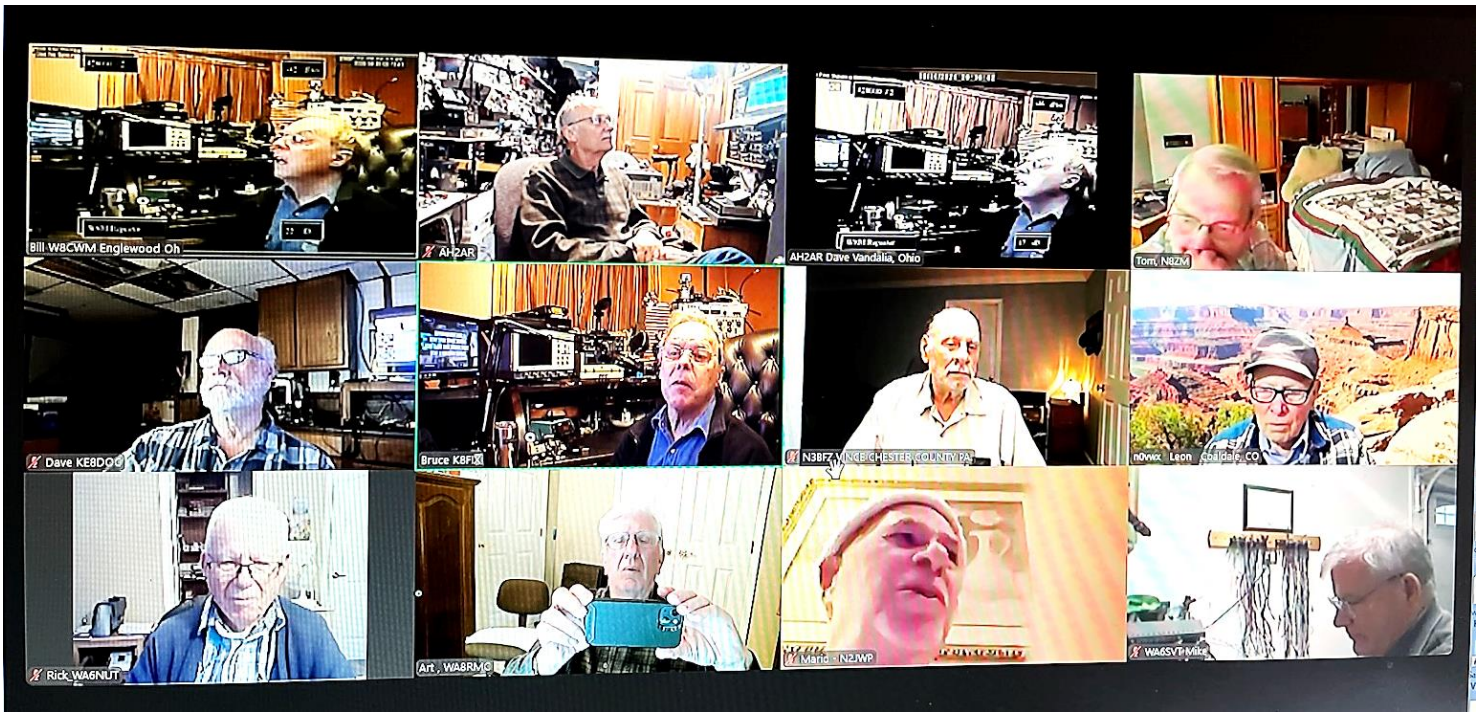
“It’s not as nice as getting a phone call from a loved one,” says Mooneyhan, “but if you’re in an area where the cell service and land lines are totally disrupted, a message saying ‘I’m OK, everyone’s fine, don’t worry,’ that beats the heck out of not knowing.”

ATCO/DARA ATV NET WEDNESDAY NIGHT 8 PM MEETING

Below is a screen shot of the check-ins, Wednesday 10/16/24 on ZOOM. We have a great time talking about ATV related subjects and usually branch off to other topics as well. All are invited and from anywhere on our planet. The NET lasts for no more than an hour. We usually have 10-15 participants.

If you haven't used ZOOM before, click on the link below and follow the prompts.
https://www.zoom.us/j/9670918666
Or, click on your ZOOM icon and enter **ID: 967 091 8666** & **passcode: 191593** to enjoy the fun.

Below are the participants checked in on Wednesday, October 16, 2024. From top to bottom and left to right are:



Bill W8CWM, Dave AH2AR, Dave AH2AR (he checked in twice), Tom N8ZM, Dave KE8DOC, Bruce K8FIX, Vince N3BFZ, Leon N0VWX, Rick WA6NUT, Me WA8RMC (taking picture) Mario N2JWP & Mike WA6SVT

USA ATV REPEATER DIRECTORY April 2024

NOTES:

1. All repeaters are NTSC, VUSB-TV, 6 MHz channel, unless otherwise noted. Some repeaters use non-standard lower sideband inputs VLSB to reduce interference with FM repeaters in upper portion of band. The frequency listed is the video carrier frequency.
2. Digital TV lists center frequency. 6 MHz channel, unless otherwise noted. dt = DVB-T, ds = DVB-S, da = ATSC
3. For full details, go to the listed web site, or send an e-mail to the contact person
4. Some ATV groups also post repeater info on www.qrz.com under their call sign

Location	Call Sign	Output(s)	Input(s)	Modes	Web Site & Contact for info
ARIZONA					note: AZ is linked to W6ATN in S. CA & NV www.atn-tv.org
Phoenix, White Tank	W7ATN	1253.25	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
Mesa	W7ATN	421.25 1289.25 dt	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
Tucson, Mt. Lemmon	W7ATN	1277.25	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
CALIFORNIA					W6ATN rptrs linked to AZ & NV
Orange Santiago Peak	W6ATN	1253.25 5910 fm	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Los Angeles, central Mt. Wilson	W6ATN	1265.25	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Los Angeles, north Oat Mtn.	W6ATN	919.25 3380 fm	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Jobs Peak	W6ATN	1253.25	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
San Bernardino Snow Peak	W6ATN	1242 / 4 dt	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Santa Barbara	WB9KMO	1289.25	434.0 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wb9kmo@gmail.com linked with W6ATN
San Diego	KD6ILO	423 dt 1243 dt 1268 ds	441 dt 1286 ds 5885 fm	DVB-T, DVB-S, FM	kd6ilo@yahoo.com also AREDN mesh
San Jose	W6SVA	427.25	910 fm, 1255 fm	VUSB, FM	www.k6ben.com :w2nyc@pacbell.net
Clayton	W6CX	1244.5 ds	1292.5 1273 915 ds 1273 fm	DVB-S, FM	www.mdarc.org info@mdarc.org
Palomar	W6NWG	1241.25	915 fm 2441.5 fm	VUSB, FM DVB-S	w6nwg@palomararc.org mountain.michelle@gmail.com
COLORADO					
Boulder	W0BTV	423 / 6 dt or 421.25 5905 FM	1243 / 6 dt 441 / 6 dt 439.25	DVB-T, VUSB, FM	www.kh6htv.com kh6htv@arrl.net
Pueblo	W0PHC	423 / 6 dt	441 / 6 dt	DVB-T	billn@billnicoll.com www.puebloradio.org
DELAWARE					
Wilmigton	KC3AM	423 / 6 dt	439.25 LSB	DVB-T AM	KC3AM@verizon.net qrz.com
FLORIDA					
Cape Coral	W1RP	421.25	439.25	VUSB	paul@cardlink.com
Cocoa Beach	K4ATV	427.2	439.25	VUSB	www.lisats.org
Panama City	KV4ATV	434.0	919.25	?	kv4atv@gmail.com
S.W. Idaho	WI7ATV	1257 fm	426.25	VUSB, FM	ka7anm@yahoo.com under construction
IOWA					
Davenport	W0BXR	421.25	439.25	VUSB	http://www.arcsupport.com/drac/

Location	Call Sign	Output	Input(s)	Modes	Web Site & Contact for info
KANSAS					
Wichita	KA0TV	421.25	439.25	VUSB	k0wws@arrl.net
KENTUCKY					
Bowling Green	KY4TV	421.25 423.0 /2	439.25 1280 fm	VUSB FM DVB-T	w4htb@ieee.org www.qrz.com www.atn-tv.org
LOUISIANA					
New Orleans	WD0GIV	421.25	439.25	VUSB	wd0giv@att.net
MARYLAND					
Laurel	W3BAB	421.25	434.0	VUSB	www.qsl.net/w3bab
Towson	W3BAB	1291 fm	434	VUSB, FM	www.qsl.net/w3bab
Baltimore	W3WCQ	439.25 911.25	426.25 1253.25	VUSB	http://bratsatv.org/ brats@bratsatv.org
MICHIGAN					
Jackson	KC8LMI	923.25	439.25, LSB	VUSB	KC8LMI@hotmail.com
Grand Rapids	K8DMR	421.25	439.25	VUSB	ron_fredricks@att.net
Flushing	KC8KCG	1253.25	439.25 LSB	AM	kf8ui@mscginc.org
Flint	KC8KGZ	1253.25	439.25	VUSB	www.mscginc.org kf8ui@mscginc.org
MINNESOTA					
Wabasha	KD0HWX	421.25	439.25	VUSB	jonmcpete@yahoo.com
MISSOURI					
St. Louis	W0ATN	426 / 4 dt	440 / 4 dt	DVB-T	k0pfx@arrl.net
NEBRASKA					
Omaha	WB0CMC	421.25	434.0	VUSB	wb0cmc@cox.net
NEVADA					
Las Vegas	N7ZEV	1253.25 912 fm	434.0 434.0 / 2 dt 2441 fm	VUSB FM DVB-T	frank.n7zev@gmail.com linked to W6ATN S. CA & AZ
NEW JERSEY					
Vernon	W2VER	5885 fm	5665 fm	FM	jaythienel@yahoo.com
OHIO					
Columbus	WR8ATV	423 / 2 dt 427.25 1258 fm 1268 ds 2397 mesh 10350 fm	439 / 2 dt 439.25 1288 fm 1288 ds 10450 fm	VUSB AM FM DVB-T DVB-S MESH	www.ATCO.tv gkenmorris@gmail.com towslee1@ee.net
Dayton	W8BI	421.25 428 / 2 dt 1258 fm	439.25 439 / 2 dt 1280 fm 1280 dt	VUSB FM DVB-T	www.w8bi.org dpel@aaahawk.com
Van Wert	W8FY	434.0	923.25	VUSB	ka8zge@w8fy.org
OREGON					
Portland	W7AMQ	1257 fm	426.25	FM VUSB	belles73@comcast.net
Portland	WB2QHS	426.0	910 fm	VUSB FM	emellnik@emavideo.com
PENNSYLVANIA					
Delaware County	KC3AM	421.25	439.25 LSB	VLSB AM	KC3AM@verizon.net
PUERTO RICO					
Aguas Buenas	KP4IA	426.25	439.25 1252 fm	VUSB FM	kp4ia@yahoo.com
WASHINGTON					
Seattle	WW7ATS	1253.25	434.0	VUSB	https://www.qsl.net/ww7ats/ ww7ats@gmail.com qrz.com

Revision Notes:
Aug. 2019 --(1) corrected data for Kentucky (2) changed call sign for Boulder, CO Sept. 2019 - -added Pueblo, CO
Oct. 2019 --added San Diego, CA Feb. 2020 -- changed K6BEN to W6SVA, CA --added KC8KGZ, MI Mar. 2020 -- added Davenport, IA May 2020 -- corrected typos Jan. 2021 -- updated Boulder, CO repeater info June 2021 -- found 20 more ATV repeaters listed on www.repeaterbook.com -- attempted to contact all of their trustees to confirm them. Most are obsolete listings and are no longer on the air. Added only two -- Cocoa Beach, FL, Wichita, KS,
April 2023 – re-configured most listings, added 1280 for W8BI

LOCAL HAMFEST SCHEDULE

This section is reserved for upcoming Hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here; notify me so it can be corrected. This list will be amended, as further information becomes available. To see additional details for each Hamfest, Control Click on the blue title and the magic of the Internet will give you the details complete with a map! To search the ARRL Hamfest database for more details, CTL click ARRLWeb: Hamfest and Convention Calendar …WA8RMC.

10/27/2024 - 2024 MARC Hamfest at MAPS

Location: N. Canton, OH
Type: ARRL Hamfest
Sponsor: Massillon Amateur Radio Club
Website: https://www.w8np.net

11/16/2024 - 11/17/2024

Fort Wayne Hamfest & Computer Expo

Location: Fort Wayne, IN
Type: ARRL Hamfest
Sponsor: Allen County Amateur Radio Technical Society
Website: http://www.fortwaynehamfest.com/
Learn More

12/07/2024 - Winter Hamfest

Location: Archbold, OH
Type: ARRL Hamfest
Sponsor: FCARC
Website: **https://k8bxq.org/hamfest**

WEDNESDAY NITE ZOOM NET

Every Tuesday night @ 8:00 PM WA8RMC **used to** host a net for ATV topic discussion. However, in order to consolidate the two nets, ATCO on Tue. and the DARA on Wed. we'd like to have only one net on Wednesday, same time at 8 PM. We'll rotate the net control host duty so you won't be bored with just me. All are invited as we get check-ins from all around the USA and sometimes from international participants. We normally have 12-20 check-ins.

To join ZOOM for the first time, simply type **https://zoom.us/join** then download, install the .exe program and run it. ZOOM will start. Click on **join**, enter the **9670918666 meeting ID** then the **191593 password.** Use video or just audio if you don't have a camera.

ATCO TREASURER REPORT - de N8NT

OPENING BALANCE (07/20/24)……..…….$ 4984.48
CLOSING BALANCE (10/20/24) ……... $ 4984.48

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Secretary: Mark Cring N8COO
Newsletter editor: Art Towslee WA8RMC

Corporate trustees: Same as officers

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. It is now a free publication.

ATCO publishes this Newsletter quarterly in January, April, July and October. It is sent to each member without additional cost. All Newsletters are sent via Email.

Your support of ATCO is welcomed and encouraged.

ATCO REPEATER TECHNICAL DATA SUMMARY

Location:	Downtown Columbus, Ohio
Coordinates:	39 degrees 57 minutes 47 seconds (latitude) 82 degrees 59 minutes 58 seconds (longitude)
Elevation:	630 feet above the average street level of 760 feet ASL (1390 feet above sea level)
TV Transmitters:	423.00 MHz DVB-T, 10W FEC=7/8, Guard=1/32, Const=QPSK, FFT=2K, BW=2 MHz, PMT=4095, PCR=256, Vid=256, Aud=257
	427.25 MHz Analog VSB AM, 50 watts average 100 watts sync tip (cable channel 58)
	1258 MHz 40 watts FM analog
	1268 MHz DVB-S QPSK 20W SR=3.125MS, FEC=3/4, PMT=32, Video=162, Teletext=304, PCR=133, Audio=88, Service =5004) **Two video channels on this output:** Channel 1 is fed from all receivers. Channel 2 is fed from 439.25 analog receiver.
	2397 MHz Mesh Net transceiver 600 mw output (channel 1 minus 2). ID is WR8ATV-2
	10.350 GHz: 1W continuous analog FM
Link transmitter:	446.350 MHz: 5W NBFM 5 kHz audio. This output used for control signals & to repeat 147.48 MHz and 449.975 MHz input.
Identification:	423, 427, 1258, 1268 MHz, 10.350 GHz transmitters video ID every 10 min. with active video and information bulletin board every 30 min.
	423 MHz digital, 1268 MHz digital & 10.350 GHz analog - Continuous transmission of ATCO & WR8ATV with no input signal present.
Transmit antennas:	423.00 MHz - Single slot rib cage horizontally polarized 3 dBd gain "omni"
	427.25 MHz - Dual slot horizontally polarized 7 dBd gain "omni" major lobe east/west, 5dBd gain north/south
	1258 MHz - Diamond vertically polarized 12 dBd gain omni
	1268 MHz - Diamond vertically polarized 12 dBd gain omni
	2397 MHz - Ubiquiti dual polarity omni 13dBi gain slot for channel 1 minus 2 MESH Rx/Tx operation
	2397 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni (Used for experimental Mesh operation)
	10.350 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni
Receivers:	147.480 MHz - F1 audio input with touch tone control. (Input here = output on 446.350)
	439.000 MHz - DVB-T QPSK, 2MHz BW. Receiver will auto configure for FEC's. (Input here = output on all TV transmitters)
	439.250 MHz - A5 NTSC video with FM subcarrier audio, Upper sideband. (Input here = output on all TV transmitters & also direct output to 1268 MHz DVB-S output channel 2.)
	449.975 MHz - F1 audio input aux touch tone control. 131.8 Hz PL tone. (Input here = output on 446.350).
	1288.00 MHz - F5 video analog NTSC. (Input here = output on all TV transmitters)
	1288.00 MHz - DVB-S QPSK SR=4.167MS, fec=7/8. PIDs: PMT=133, PCR=33, Vid=33, Aud=49 (In here=out on all Trans.)
	10.450 GHz - F5 video analog NTSC. (Input here = output on all TV transmitters)
Receive antennas:	147.480 MHz - Vert. polar. Diamond 6dBd dual band (Shared with 446.350 MHz link output transmitter)
	439.00/439.250 MHz - Horizontally polarized dual slot 7 dBd gain major lobe west (Shared with 439 digital & 439.25 analog receivers)
	1288.00 MHz - Diamond vertically polarized 12 dBd gain omni (shared with analog and DVB-S receivers)
	2398.00 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni (inactive at this time because MESH is on 2397)
	10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni

Auto mode Input control:	Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
	00*	turn transmitters **on** (enter manual mode-keeps transmitters on till 00# sequence is pressed)
	00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
	264	Select Channel 4 Doppler radar. (Stays on for 5 minutes) Select # to shut down before timeout.
	004	Select 10.450 GHz receiver. **(Always exit by selecting 001)**
	001	Select 2398 MHz receiver then 00# for auto scan to continue
Manual mode analog)	00* then 1 for Ch. 1	Select 439.25 analog /439 digital receiver (if video present on digital, it is selected. Otherwise,
Functions:	00* then 2 for Ch. 2	Select 1288 digital receiver
	00* then 3 for Ch. 3	Select 1288 analog receiver
	00* then 4 for Ch. 4	Select 2398 receiver
	00* then 5 for Ch. 5	Select video ID (17 identification screens)
	01* or 01#	Channel 1 439.25 MHz analog/439 digital rcvr. scan enable (01* to scan this channel & 01# to disable it)
	02* or 02#	Channel 2 1288 MHz digital receiver scan enable
	03* or 03#	Channel 3 1288 MHz analog receiver scan enable
	04* or 04#	Channel 4 2398 MHz scan enable
	A1* or A1#	Manual mode select for 439.25 receiver audio
	A2* or A2#	Manual mode select for 1288 digital receiver audio
	A3* or A3#	Manual mode select for 1288 analog receiver audio
	A4* or A4#	Manual mode select for 2398 receiver audio
	C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
	C1* or C1#	No function at this time
	C2* or C2#	No function at this time

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