

# Boulder Amateur Television Club TV Repeater's REPEATER

August, 2022  
3ed edition, issue #109

BATVC web site: [www.kh6htv.com](http://www.kh6htv.com)

ATN web site: [www.atn-tv.com](http://www.atn-tv.com)

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## World-Wide ATV QSO Party - Friday, August 26th

Here is the schedule and notes from Peter, VK3BFG:

The timing will be 0000Z Aug 27 (8 PM Friday 26th in Columbus), 0100Z Aug 27 (7 PM Friday Aug 26 in Boulder Colorado) and 0200Z Aug 27 (7 PM Friday Aug 26 in Los Angeles). For us here in Melbourne it will be 10AM, 11AM and 12N.

We will start with Art in Columbus, Ohio and his ATCO Zoom net. Due to work on the roof the Columbus Repeater had to be taken down and I understand Art is re-building. Plan on about 15 minute overs in total from either side of the Pacific. This may be two or three stations coming up dependent on their content. Short videos are OK, but maybe 5 minutes max. A personal appearance and a hello is just as good. This arrangement will give US and Australian stations opportunity to respond to each other. Once we reach the west coast of the US we can continue back and forth across the Pacific as long as we like.

**Boulder QSO Party Plans:** The Boulder coordinator is Bill, AB0MY. Bill says I am planning on putting up the stream from Peter on our W0BTV repeater starting at 6 pm local (0000Z) on Friday, Aug 26. We are on at 7 pm local. So let me know if you are planning to participate and how, so I'll have some idea of about how long we might run. I will be streaming our repeater output to their system during that time. Peter is not sure about their stream to BATC (They've had trouble with it.). Don, N0YE, will stream the W0BTV repeater to the BATC for the entire Friday evening QSO party. **Thus BATC**

viewers elsewhere will be able to watch the entire QSO party by going to:  
<https://batc.org.uk/live/n0ye>



## NEW ICOM IC-905 Microwave Radio

Bands: 144 / 430 / 1200 / **2400 / 5600 / 10 GHz**

Modes: SSB, CW, FM, AM, RTTY, DV/DD, ATV

Video: <https://www.youtube.com/watch?v=kzGQWmTKNzc>

The video below shows off the new radio. ATV mode is demonstrated at around the 4 min 30 sec mark. To save you a click, here is a quick transcription of ATV part:

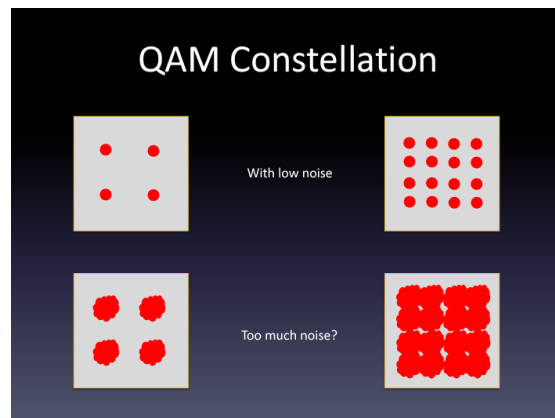
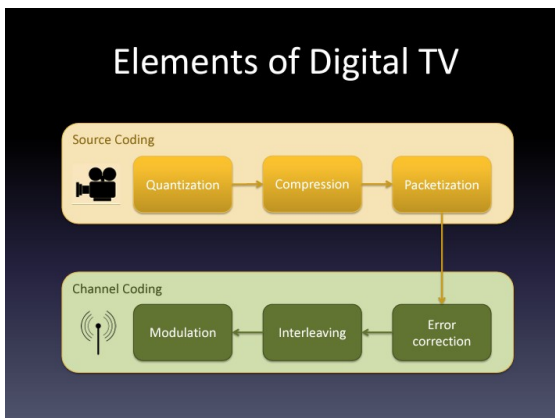
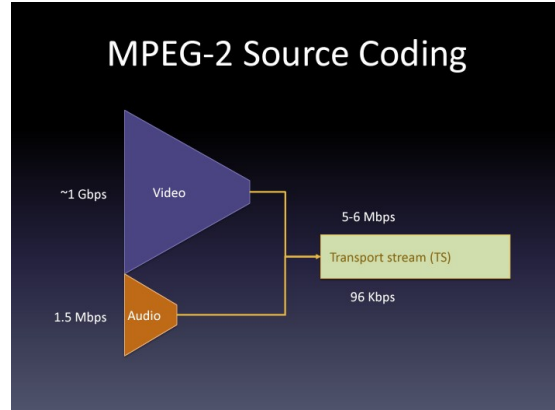
*"The IC-905 is compatible with ATV in the FM mode. If an analog camera is connected, the IC-905 can transmit and receive video and also supports enlarged display of the video."*

Not sure when the radio will be available. WWATS currently uses ATV in AM mode (double sideband), so it would not be compatible with our repeater as-is. The Oregon ATV guys use(d) FM, though.

You don't need to use expensive long runs of low-loss coax for this radio. It uses Ethernet cabling to run to a mast-mounted RF module that then uses a very short run of coax to the antenna to limit losses.

73, Burt Guillot, N7CS, Marysville, Washington

MORE at: <https://icomuk.co.uk/Icom-IC-905-VHF-UHF-SHF-Transceiver-Announced-at-Tokyo-Hamfair-2022/2/3250/>



## Want to learn a lot more about the internal workings of DVB-T ?

Go to Matt, KØDVB's web site: <https://k0dvh.org/television/atv-training/> and down-load his .pdf file on *DVB-T Training - Part 2*.



Matt was the Boulder County, Colorado, ARES (BCARES) ATV guru and coordinator for several years. He gave several training classes on ATV to BCARES members. For his classes, he developed some excellent

power-point slide presentations. This particular lecture dug deeply into the internal workings of DVB-T.

Does Matt's vanity call sign of "DVB" give away his special interest in amateur radio ? Matt says "My main interest is in digital amateur TV using DVB-T in a public safety context. I am a graduate of the University of Colorado, my background includes service as an officer in the US Navy as well as many years building complex software for telecommunications and data storage. Matt was unfortunately also a victim of the 30

Dec. 2021, Marshall Fire Storm which destroyed 1000+ homes. As a result Matt has relocated back to Texas. We will miss Matt.

## Feedback on DVB-T Band-Widths:

Jim, --- Wow! That is a really comprehensive summary of the possibilities of DVB-T. You can't put your tools to their best use without knowing their capabilities and limitations. Thanks!

73 de Pete, WB2DVS, Boulder, Colorado

Jim --- You have done a lot of work putting together those test results for the different bandwidths and encodings. Good job. It is going to take a bit of time to digest all of this info. Two things stick in my mind. With a 21 dB gain preamp with 0.7 dB NF, the improvements in performance were much less than 21 dB gain of the preamp. That puzzles me. The other is with signals that low (-100 dBm) could there have been leakage out of the modulator case and directly into the receiver case perturbing the observations?

73 de Don, N0YE, Boulder, Colorado

Jim -- This is in regards to your excellent comparison that you put together regarding bandwidth and constellation settings test information that you compiled in the last newsletter.

We are curious as to why the receive sensitivity stays at -101dbm for the 2 MHz wide bandwidth using the QPSK constellation after inserting the preamp in line with the HV-110? Note that in everyone's experience during weak signal work (while using this bandwidth with the same parameters), using a preamp allows for decoding in situations where without the preamp the HV110 fails to decode the transmission. Is the preamp improving the MER but not showing an increase in signal strength? That was the only thing I could figure out what may be occurring. Your thoughts?

Cheers, Dave, AH2AR, Dayton, Ohio

Hi Jim..---- Very interesting test of DVB-T bandwidths. I am wondering if lowering the frame rate by 1/3 or /12 would allow a larger screen, or maybe with the same screen size would give better results at 2 MHz? Another question came up last night on our local ATV Zoom session. Why was a 20dB preamp only improving things by 6 dB at best, and sometimes 0? Dave, AH2AR, and I couldn't think of any reason for that.

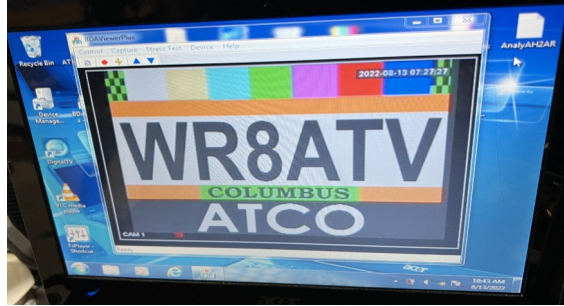
73 de Tom Holmes, N8ZM, Dayton, Ohio

**KH6HTV Replies:** *Good point Tom. My guess is Yes. A lower frame rate, but same overall bit rate should allow higher resolution frames.*

*Adding a preamp typically only improves things by the difference in noise figures of the basic receiver vs. the preamp. Never by the gain of the preamp. But, yes I too was baffled by some times not seeing any improvement.*

## Mid-West DATV Band Openings

Dave, AH2AR, in Dayton, Ohio reports receiving the ATCO, Columbus, Ohio, ATV repeater on 13 August at 7:0 am. The distance is 63 miles.



Pictured above is the WR8ATV ATV Columbus Repeater ID as viewed from Vandalia, Ohio. I received the repeater ATV signal using the UT-100. The continuous DVB-T ID transmissions on the ATV repeaters within the Midwest region provide an excellent way to literally watch for band openings. The ATCO's DVB-T transmission can be found on 423 MHz, QPSK Constellation @ 2 MHz bandwidth.

ATV A5 DX Band Opening on 16 August between Charles, WB8LGA in Morrow County Ohio and Brian, KC8LMI in Pleasant Lake, Michigan. The distance between the two stations was 153 miles.



**ATCO Activities** -- tnx to Art, W8RMC, for sharing the ATCO newsletter with us. To find out more about ATCO, check out their web site: [www.atco.tv](http://www.atco.tv)



### ACTIVITIES ... from my Workbench

Well, we're in the middle of summer and here I am trying to find a plausible excuse for not cutting the grass. Looking out the window, I see nothing but heavy rain coming down. **How about that!** I'm sitting here trying to think of an **excuse** and what I find is a good **reason**. But I digress. Let's get back on track.

First and foremost is our ATCO repeater re-work. I wasn't planning for this right now but I'm forced into replacing all eight of our repeater Heliac RF feedlines. The building we're on is having the roof replaced so we must remove all feedlines then re-install them after they construct new roof feedthroughs. It's a \$40-\$50 million overall renovation project to replace all windows and re-caulk the entire 42 story building going on for about 4 years now. Most is now complete except for the leaking roof over the communication room. I got the word to remove our feedlines about 3 weeks ago with a 60-day window to complete it. Sounds like an easy chore but re-working 8 sealed Heliac cables in the gridwork on top of the building takes a lot of time. About 20 total hours into it, I now have the lines re-routed and secured. The repeater power is back on but first the transmitters need testing for SWR to make sure I got the right cables connected to the correct transmitter. The 147.48 - 446.350 link system is on and OK but the rest must be verified.

As soon as the ATCO repeater is returned to normal operation, I need to remove our MESH node there and replace it with a dual polarity / dual frequency unit. The assembly is ready to go up but, as stated above, the repeater work comes first. I'm expecting to remove the existing unit on Saturday 7/23/22 weather permitting. I need to get the new assembly from Ken, W8RUT, and weatherproof it before installation hopefully the following week. We'll see how it goes.

I'm still working on my new DATV VersaTune receiver design project but a supply chain limitation is preventing me from buying the needed Raspberry Pi computer boards to continue software design work. The board I now have failed and I can't find the problem. The Raspberry Pi foundation has made suggestions but to no avail so far. I truly believe it's a hardware failure so I'm ready to give up on that. As soon as I can get at least one good board, I'll send it to the guy in the U.K. doing some of the software work. Right now, the best estimate for Raspberry Pi delivery is **August 2023!!!!** Therefore, further work is on hold for a while. **If any of you guys have a Raspberry Pi model 4 with 2GB or more memory that you will sell me, I would be forever grateful.**

**(News flash!!!** I went to Microcenter on Saturday and was told there are now 10 RPIs in stock that came in the day before. I quickly grabbed 2 but was told there is a limit of one per customer. So, I bought one, put it in the car and went back in. Then I was told it is really one every 24 hours but they will make an exception for me this time.

My hardware design is done and I have a complete prototype but software debugging is the issue as there is no way to test it right now. There are boards available but at an extremely high price (over \$200 each) from unreliable Ebay sellers so I'm not going to chance that one.

We REALLY need to have a higher participation on the ATCO repeater. How about new people?? We need to have some volunteers get on the phone and wake up some of us who haven't been active in some time. Do any of you have a spare ATV transmitter (analog or digital) that you can loan or sell to a prospective ATVer so they can try it? I'm working hard to restore our existing ATV repeater. It will be sad if no one will use it.

Last note: I'd like to re-establish our Saturday breakfast activity. We used to meet on the first Saturday of each month so let's do that again! Roger, WB8DZW, you used to designate the restaurant so can you start it again?

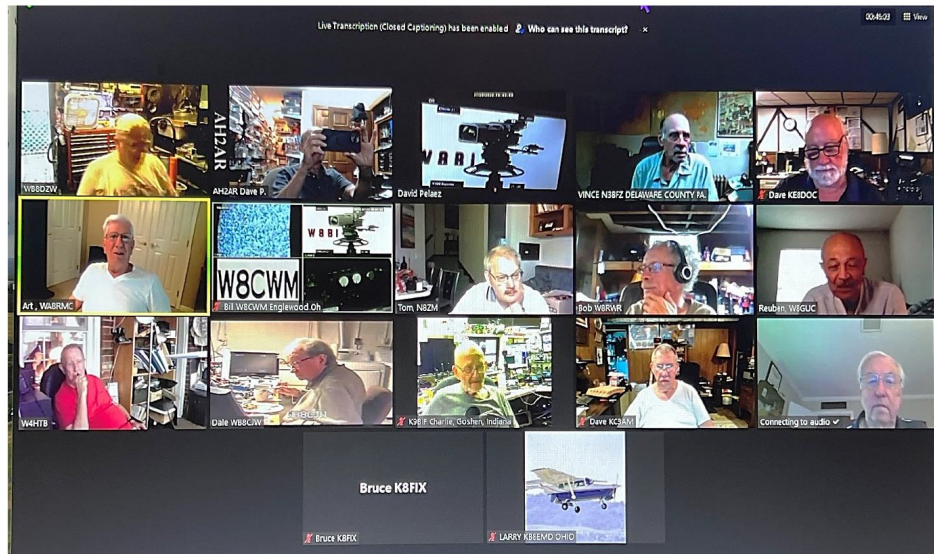
Also, I'd like to start having our Spring/Fall events again. Since we can no longer use the ABB cafeteria and since Troy, AC8XP, left the area, the Otterbein facility may not be available, so we need to find a place to meet. **Any suggestions? Let me know.** We MUST find something because I'm accumulating a lot of stuff for door prizes that I don't want to throw away! We normally have the Fall Event at the end of October, so let's tentatively assign it as Sunday October 30 at noon.

That's it for now,  
...WA8RMC



## WEDNESDAY DATV NET PARTICIPANTS

We always have great participation in our Wednesday night ZOOM meetings. Just turn on ZOOM, select the 9670918666 ID with the 191593 password at 8 PM EDT to view or participate in the ATV discussions. All are invited. Below are the 17 that were there on 7/20/22. Enjoy!!!!  
...WA8RMC



**W0BTV Details:** Inputs: 439.25 MHz, analog NTSC, VUSB-TV; 441MHz/6MHz BW, DVB-T & 1243 MHz/6MHz BW, DVB-T  
**Outputs:** Channel 57 --- 423 MHz/6MHz BW, DVB-T, or optional 421.25 MHz, analog VUSB-TV. Also, secondary transmitter, FM-TV output on 5.905 GHz (24/7).  
**Operational details in AN-51a Technical details in AN-53a. Available at:**  
<https://kh6htv.com/application-notes/>

**W0BTV ATV Net:** We hold a social ATV net on Thursday afternoon at 3 pm local Mountain time (22:00 UTC). The net typically runs for 1 to 1 1/2 hours. A DVD ham travelogue is usually played for about one hour before and 1/2 hour after the formal net. ATV nets are streamed live using the British Amateur TV Club's server, via: <https://batc.org.uk/live/kh6htvtvr> or *n0ye* or *ab0my*. We use the Boulder ARES (BCARES) 2 meter FM voice repeater for intercom. 146.760 MHz ( -600 kHz, 100 Hz PL tone required to access).

**Newsletter Details:** *This is a free newsletter distributed electronically via e-mail to ATV hams. The distribution list has now grown to about 500. News and articles from other ATV groups are welcomed. Permission is granted to re-distribute it and also to re-print articles, as long as you acknowledge the source. All past issues are archived at: <https://kh6htv.com/newsletter/>*

## ATV HAM ADS

**Free advertising space is offered here to ATV hams, ham clubs or ARES groups. List here amateur radio & TV gear For Sale - or - Want to Buy.**

**For Sale**  
**SGC Model SG-230**  
**Automatic**  
**Antenna Tuner**  
**\$235**



**New this tuner sells for \$540 at HRO.** This tuner works well and was recently removed from a de-commissioned, 160m-10m, rain gutter antenna. The price is \$235 plus \$14 shipping. Interested ? -- contact Don, N0YE, at: [don80303@gmail.com](mailto:don80303@gmail.com)

The SG-230 is completely self-contained and automatic. It requires +12Vdc power (10 to 18V). Simply applying RF to it, causes it to auto-tune. Removing DC power and the tuner is by-passed.

The SG-230 Smartuner was the first product in the HF market to offer fast, flexible tuning without any user interface. The Smartuner senses RF when you transmit from your transceiver and automatically finds the best SWR match to your antenna. This unit works with ANY radio and ANY antenna and requires NO special interface, making it the most versatile tuning product available. The SG-230 can be used in base station, mobile, marine and aviation applications - and has been the "Gold Standard" of automatic antenna tuning for more than a decade.

The SG-230 works from 1.6 to 30 MHz and will tune typically down to a VSWR of < 2:1. It handles up to 200 W(pep) or 80W(continuous). It is ideally located directly at the base of the antenna. It will tune an antenna wire of 23 ft. min. over the whole range 160m thru 10m. It will tune an 8 ft. wire from 80 meters and up. It includes a 9 ft. control cable with RG-58, PL-259 coax and DC wiring, plus a set of #14 ground radials. A detailed brochure and detailed instruction manual can be down-loaded from SGC at: <http://www.sgcworld.com/230ProductPage.html>





# SLATS

## ST. LOUIS AMATEUR TELEVISION SOCIETY

**Buy - Sell - Trade - Giveaway**



( web site: [http://www.slatsatn.net/?page\\_id=713](http://www.slatsatn.net/?page_id=713) )  
Check it out. New items listed every week



**WWW.SLATSATN.NET**

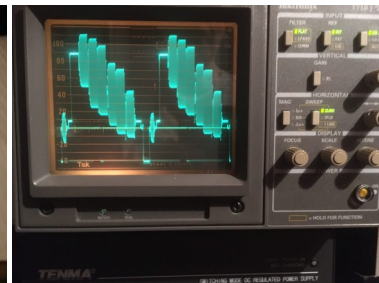
Items like: Microwave Test Equipment,  
Flex Radio 3000 , Antenna Bridge, Hi Freq Probe,  
Marconi Power Meter, 23cm Trnsvrtr, NTSC TEST EQUIP!



Hi-Des UT-120 Receiver  
Dual-Diversity, \$50



23cm Transverter \$450

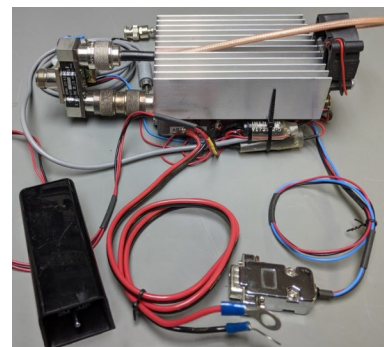


Tek Video Waveform Monitor  
\$35, also VectorScope



4.4GHz Power Meter - \$300

**FLEX RADIO  
3000  
  
\$650**



30 W Amp for Flex SDR-1000 \$75