

Boulder Amateur Television Club TV Repeater's REPEATER

December, 2020

BATVC web site: www.kh6htv.com

ATN web site: www.atn-tv.com

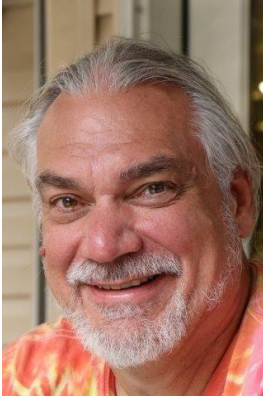
Jim Andrews, KH6HTV, editor - kh6htv@arrl.net www.kh6htv.com



2007 photo of KH6HTV's 3 granddaughters, Emma, Grace & Alexa,
plus daughter Susan and daughter-in-law, Dee -- with Santa, KA0BSA

Merry Christmas !

*To all AT'V'ers, both in Boulder and World-Wide
from Santa, alias, our own George, KA0BSA*



Chris, K0CJG



Heimir, W1ANT



Mike, WF0M

NEW W0BT ATV VIEWERS

After advertising in a recent BATVC newsletter (Nov. issue #62) and also the BARC newsletter, the New combo DVB-T / DVB-S receiver which will also receive the amateur 70cm & 33cm bands, we have gotten several hams asking to purchase the receiver so they can also join in on the ATV fun. The price for the GT Media V7 Plus receiver is dirt cheap at \$42 from Amazon Prime. The following hams now

are proud owners of the new receiver: Bill, KD0YYY, Nugget Hill; Chris, K0CJG, Boulder; Lad, KE0ZB, Superior; Heimir, W1ANT, Boulder; Mike, WF0M, Broomfield, & Myron, KL7YY, Colorado Springs. Bob, WB0NRV, Johnstown also just purchased a Hi-Des, HV-110. We welcome all of you to our growing Boulder ATV community. We encourage you to check in to our ATV nets. Plus whenever, any of you need a test ATV signal to check out your new receiver and your 70cm antennas, please do not hesitate to contact either Jim, KH6HTV, or Don, N0YE, the repeater trustees. We will be glad to turn on the repeater in the BEACON mode to provide you with a test signal.



Heimir sent us this photo showing his successful reception of W0BT

2ed Weekly ATV Net (Wed. evenings 7 - 8pm): Our present ATV net which is held on Thursday afternoons is great for retirees, but not a viable option for younger hams who are still working. With the recent addition of several new, younger, ATV viewers, we felt the need to expand our ATV weekly programming to enable them to also participate in the ATV hobby. We have thus made the decision to add a weekly ATV activity night. We will hold it on Wednesday evenings for the hour prior to the Boulder Amateur Radio Club's weekly social net. BARC's net meets at 8pm on the BARC, 2m FM repeater (146.70MHz, -600kHz, no PL required). We will hold our net starting at 7 pm, and limit it to a max. of one hour duration to allow hams to also then participate in the BARC net. We will try to have a bit different format with ATV

hams showing off their ham shacks, home-brew projects, slide shows, ham related lectures, and other videos of ham interest. We encourage all current ATVers to also check into the Wed. evening event. As with our Thursday net, we will use the BCARES, 2m FM repeater for our net control and voice intercom. (146.76MHz, -600kHz, 100 Hz PL tone required). The first ATV activity night will be this coming Wednesday, December 9th.

AH2AR ATV DRONE FLIGHT: In the previous newsletter we reported on the upcoming experiment of Dave, AH2AR, flying a 70cm ATV transmitter from a drone. As planned, Dave and friends flew the drone on Saturday, November 14th. Dave makes the following report ----

"The second ATV drone flight ended up starting a little earlier in the morning, on a somewhat cloudier day, and it sure was quite a bit colder outside at 26 degrees. Yes, there was definitely frost on the pumpkin! Once airborne, the ATV signal from the 2 watt 70cm ATV payload was received at no better than P3 through the Dayton ATV repeater (22 miles). WB8LGA (Charles) in Morrow County Ohio (102 miles) was able to detect sync throughout the flight, and was able to receive the signal on his SDR. W8URI, (Bill) in Mt Giliad Ohio (119 miles) was experiencing interference issues from a local DMR repeater and was unable to receive any video on his ATV equipment but was able to detect the ATV carrier on his IC-9100. W8KHP (Al) in Hebron, Kentucky (40 miles) received the ATV signal at P1. KE8DOC (Doc) in the Dayton area maintained a P-3 view through the DARA ATV repeater (22 miles)."

Dave says the flight was limited to 400 ft. altitude due to FAA regulations. He is considering rebuilding the 2 watt transmitter with a 6dB more powerful amplifier. The Midwest ATV group now uses Zoom rather than 80 meters SSB to coordinate their activities. This photo shows some of the results on their Zoom site.





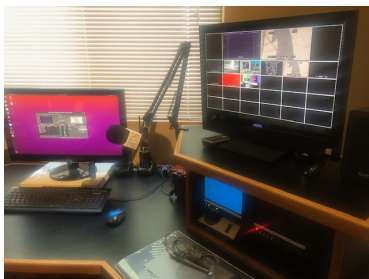
ATN (KC6JPG) Studio Receives Makeover

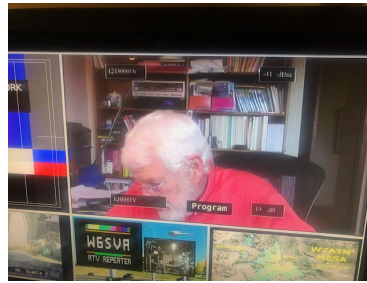
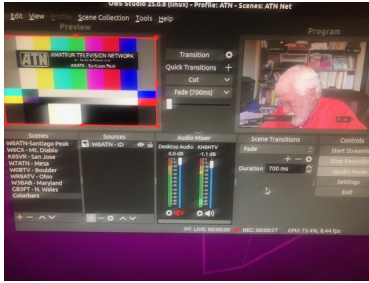
Aloha Jim! --- Happy Thanksgiving my friend. I am very happy to announce that phase 1 of our ATN Chapter IP linking system (repeater linking) is in operation. The photo shows the W0BTV-TV-R repeater on line and visible on our matrix display. I am using Ubuntu Linux 20.04 with an Asus Mobo / AMD Phenom quad core. Not bad for an old system.

Next project is to upgrade 2 MoBo's. First system is to replace the Intel Dual Core / Gigabyte system to a Ryzen 9 / Asus Strix for live video production, and a Ryzen 7 / Asus Strix for IP linking and concurrent streaming. This will be used for our simultaneous Whereby ATN1 channel, YouTube, and BATC streaming ... with multiple audio busses to allow proper "mix-minus" when our IP links are on line / transmitting during net times. I am looking forward in completing the project by January, 2021.

PS. I am currently enjoying the W0BTV net and currently test recording the net. System looks AWESOME!

73, Roland Hoffman, KC6JPG,
Digital Systems Director, Amateur Television Network





WY --> CO ATV ? --- We recently received this e-mail from Pat, KE6DUY, in Glasgow, Montana.

I found the BATVC newsletters on your website and have enjoyed reading them. There is zero ATV activity around me but I would like to use ATV at least once in my life. I may be in southern Wyoming sometime during the next two summers and would like to participate in your Thursday net when I am there. Currently I have a 'North country radio kit' 1/4 watt 70cm AM analog transmitter and will be building a PC Electronics 25 watt amplifier from his left over boards and a RA30H4047M module. Would my AM signal on 439.25mhz get into your VUSB repeater? How many watts would I need to transmit from the southern Wyoming border? (Would the 25 watt amp be enough or should I build a 60 watt amp?) --- 73 de Pat, KE6DUY

After exchanging some e-mails with Pat, we ran some Radio Mobile rf path predictions for a couple of known, good rf sites on the Colorado-Wyoming border, near I-25. We then set Pat this reply.

Aloha Pat --- KE6DUY OK -- attached are the results of my RF path calculations for an ATV contact from Wyoming to the Boulder ATV repeater using NTSC, analog signals. The bottom line is Yes, it should be possible with 25 Watts (PEP). The expected picture quality would be P3. (note: for digital, the quality would be P5) I assumed using an M-Squared, 6 element yagi antenna. model 440-6 We know they work and work well. It is my recommendation, if you need to purchase an antenna. It sells for about \$100. Available at HRO, DX Engineering, etc. ---- GOOD LUCK ! contact us again when you are ready to schedule an ATV QSO via our repeater.

73 de Jim a, KH6HTV

HF is Back - Yeah ! The sunspots have returned. The sun numbers are rising rapidly. The higher HF bands are suddenly coming to life again after a long siesta. I am now hearing lots of activity on 17 meters, plus 15m, some on 12m, and a smattering of signals even on 10 m. Mike, NJ0L, has sent us this e-mail with an interesting link to follow what is happening to HF.

For those of you who might be interested – here's a link to the NOAA Space Weather Prediction Center's "RADIO COMMUNICATIONS DASHBOARD". If you run the "D REGION ABSORPTION PREDICTION" animation you may see regions of the earth lit up in blue (or other colors) from time-to-time, indicating enhanced D region absorption on the sun-facing side of the earth (unhelpful for HF propagation). I think that

the time-of-appearance of those absorption regions correlates with short-lived peaks seen in the plot of Solar X-ray Flux vs. time (upper right on the web page). I.e. X-ray bursts drive D region ionization and radio wave absorption.

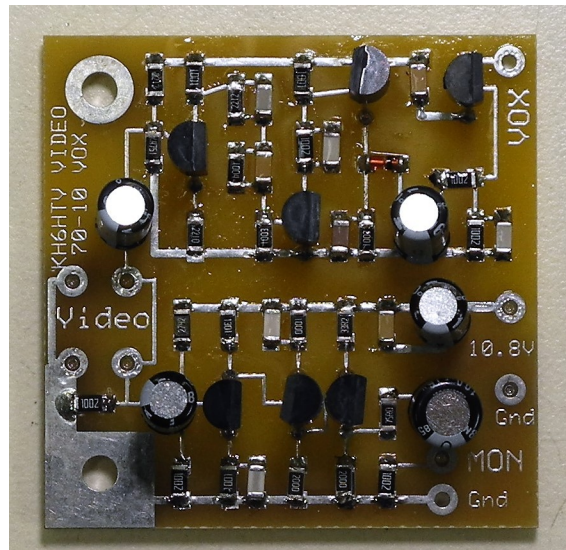
<https://www.swpc.noaa.gov/communities/radio-communications>

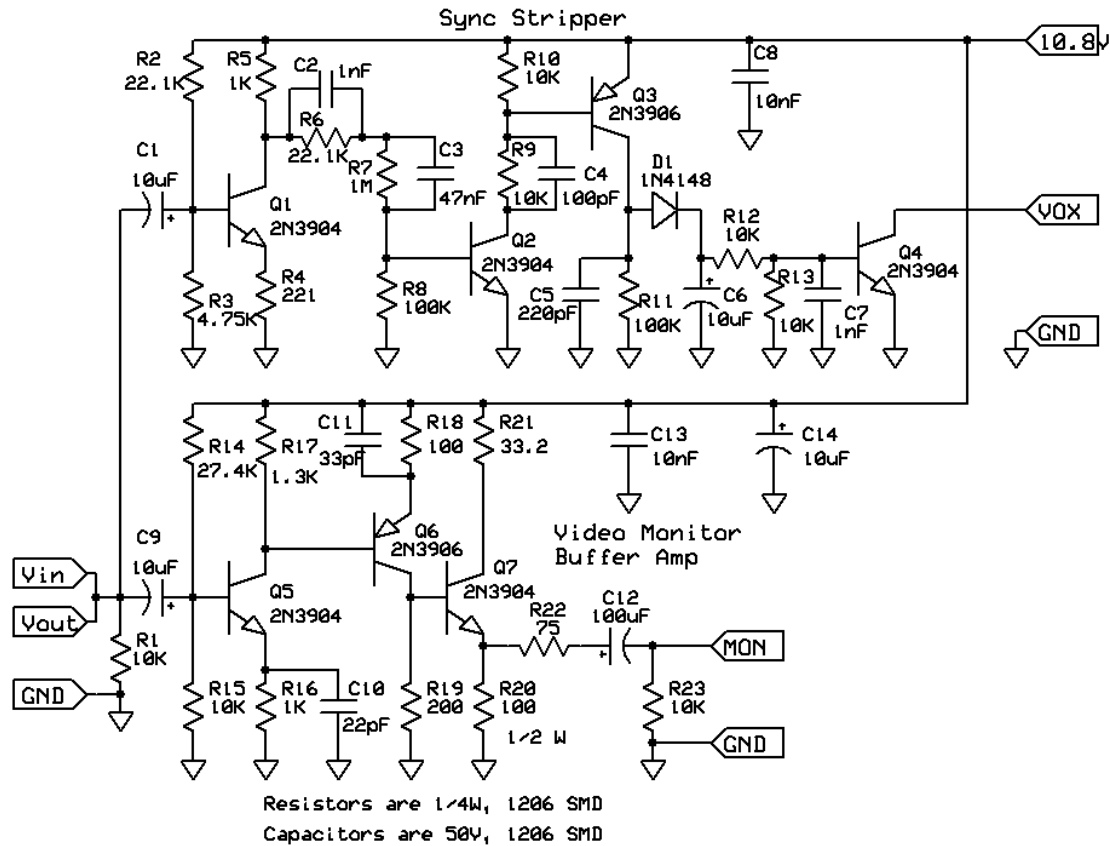


HF PROPAGATION TABLES: Our resident antenna expert, Prof. Ed, K0JOY, has recently assembled his Bible of HF propagation tables. They are centered on Colorado and give predictions for HF propagation on 80m, 40m, 20m, 15m & 10m to seven generalized zones world-wide. The tables are for each hour of the day and each month of the year and for levels of solar activity ranging from Very Low to Ultra High. Ed's 79 page table is available in .pdf format. If interested in getting an electronic copy, send your request to the editor and I will forward it to Ed.

VOX for Analog ATV

I recently got an order to build one of my older designs. It was for my model 70-10, 70cm, 10 Watt, analog, TV transmitter. Included in my design was a VOX circuit. No, this time VOX does not stand for Voice Operated Transmit. For ATV, it means Video Operated Transmit. The VOX circuit detects the presence of an incoming video signal and then in turn keys up the transmitter. I decided that I would share my circuit with the readers of this newsletter. There are still lots of ATV hams out there using analog TV. I hope you find this circuit of interest.





This is the actual schematic of my VOX circuit. It actually contains two independent circuits. The circuit on the top, Q1 - Q4 is a video sync stripper, while the circuit on the bottom, Q5 - Q7 is a unity gain video buffer amplifier. An analog video signal is connected on the left to Vin and loops back out on Vout. The transistors Q1 & Q5 pick off the video, but present a high impedance to the looped thru video signal.

For the video buffer amplifier, Q5 & Q6 provide a voltage gain of 2 X. Q7 is an emitter follower with unity voltage gain, but very low output impedance. R22 provides a 75 Ω output impedance. The net result is a high input impedance, unity gain, buffer amplifier with back matching. A 1 V video signal input will result in a 1 V into 75 Ω load output signal. Caps, C10 & C11 provide high frequency compensation. The frequency response is very flat over the entire video band up to beyond 4.5 MHz.

For the sync stripper, Q1 provides a high input Z, and 5X voltage gain. The remaining R/C plus Q2 & Q3 networks serve to filter out the sync pulses on the video signal. The strong sync pulses on the collector of Q3 are then rectified by diode D1 and C6 which then turn on hard transistor, Q4. Q4 is an open collector and thus pulls any external circuit to ground whenever, TV sync is detected. In my 70-10 TV transmitter, I then use this logic to ground as the PTT to key on the final amplifier.

BACK-UP, BACK-UP, BACK-UP !!! How many times have we been given this advice relative to our computer files ? Well believe it. There are way too many horror stories of folks having their hard disc crash and lose everything. I guess I was pushing my luck with my 2009 Apple MacBook Pro laptop. It is my main workhorse computer for most everything. I do have a couple of Windows 10 PCs, but I use them strictly for ham radio applications. I have a Dell All-in-One for my ICOM IC-7300. Plus I have an HP laptop for streaming our ATV repeater to the BATC. My back-up has been to copy from my Apple, My Documents files onto a USB memory stick and then keep them on both the Dell and HP computer. Recently, my Apple croaked and refused to boot up completely. Oh O ! disaster, as my back-ups were a few months old. All good intentions to back up sooner, but they kept getting forgotten. For one thing, I feared losing the complete e-mail list for this BATVC newsletter. There goes 400+ ATV ham names. This is one reason, this issue of the newsletter is late.

--- Well to cut to the finish. All is well again. Fortunately, we have a great small business here in Boulder that specializes in Apple/Mac repairs. I took my Apple to Boulder Mac Repair on north Broadway (near the old hospital and Ideal market). They took one look at it and said your hard disc is failing, but not completely and we might be able to save your files. They removed the hard disc and replaced it with a Samsung solid state disc (SSD). They had to work hard and try several techniques, but they were able to finally transfer all my files from the failing hard disc back onto my computer. Yea ! Plus, they charged me a reasonable price to repair my computer. The folks there were very friendly and easy to deal with --- totally unlike the ZOO experience I have encountered at the Boulder Apple Store. If you have any Apple products that need some TLC, I highly recommend you check out Boulder Mac Repair.



73 de Jim, KH6HTV

FEEDBACK:

9 cm BAND Sunsetting: Aloha Jim --- The FCC document 20-138A (<https://docs.fcc.gov/public/attachments/FCC-20-138A1.pdf>) has the 3.3 GHz band grandfather clause in section "E." This allows existing stations who have 3 GHz equipment to continue to use it. The sunsetting is two level on the 3.4-3.5 GHz band that would sunset when licenses are issued. The other is 3.3-3.4 GHz and currently there are no rules for commercial use of this part of the band and may not be for several years. Thanks to the help of the ARRL, ATN, ARDEN and other ham commenters, we were able to get the grandfathered operation of ham radio in the band.

73, Mike, WA6SVT

U.K. Source of Xtals

Hi Jim: Thought your readers would like to know a source for real Quartz Crystals, like ICM all over again....HI I needed to buy some actual crystals and I found this company in England called Quartz Lab. Their website is quartzlab.com The head person is Dave Hayes -- email: sales2@quartzlab.com

I ordered four crystals for a WX sat. receiver oscillator. Credit card payment is thru Paypal. In about four weeks they arrived by airmail. Prices are reasonable and they are nice to deal with. All the crystals worked first time, well built, neat construction

Regards, Roger Paskvan, WA0IUJ, Bemidji, MN



<http://www.quartzlab.com/>

Back in the UK! — From July 2009 QuartzLab is trading again from the UK. More details are provided on the Company History pages. Quartzlab has over 30 years of experience in supplying quartz crystals to the international communications market. Our product range includes the supply of quartz crystals in the frequency range 1.5 to 225 MHz in all popular holder types as well as crystal oscillators in DIL8 and DIL14 packages.

Quartzlab is well known for excellence of service and the provision of professional advice on technical issues associated with quartz crystals and frequency control products in general.

Quartz crystals supplied by Quartzlab are used all over the world in a variety of applications. Customers include defense and security forces, PMR (professional (business) mobile radio), marine, satellite and amateur radio (ham radio) operators.

Delivery is an important part of our service to customers. We are able to provide our customers with a good delivery service and if necessary Quartzlab can deliver small quantities of quartz crystals in just over a week. Our slogan for the last 30 years is as relevant in 2007 as it was back in the 1970s.

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If you need just one quartz crystal for a prototype or 10,000 quartz crystals per month for a production run, Quartzlab is ready and able to meet your frequency control requirements.

Credit cards accepted using the Pay Pal Scheme

W0BTV Details:

Inputs: 439.25MHz, analog NTSC, VUSB-TV; 441MHz/6MHz BW, DVB-T & 1243MHz/6MHz BW, DVB-T Output: 423MHz/6MHz BW, DVB-T, or optional 421.25MHz, analog VUSB-TV. Operational details in AN-51a Technical details in AN-53a. Available at: <https://kh6htv.com/application-notes/> We hold an ATV social net on Thursday afternoon at 3 pm local Mountain time. We hold an ATV activity night on Wednesday evenings at 7 pm. ATV nets are streamed live using the British Amateur TV Club's server, via: <https://batc.org.uk/live/kh6htvtvr> or n0ye.

ATN Web Site:

check out our new ATV repeater listing on the ATN web site
---- <https://www.atn-tv.com/repeaters/colorado-repeater>

Newsletter Details: This is a free newsletter distributed electronically via e-mail to ATV hams. The distribution list has now grown to over 400. If you have friends who would also like to receive this newsletter, send their name, call sign and e-mail address to the editor, KH6HTV. 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.**

23cm Low Noise Pre-Amp

Model 23-4LNA: 0.9 dB Noise Figure, 16 dB Gain, -3dB BW 105 MHz, Pout(-1dB) +19 dBm, DC power required +12Vdc at 40mA. Optional DC feed via RF out connector. Includes test report with NF measured on H-P 8970A Noise Figure Meter. ---- Price \$100
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detailed spec. sheet available at
www.kh6htv.com