

BOULDER TV Repeater's REPEATER

September, 2018



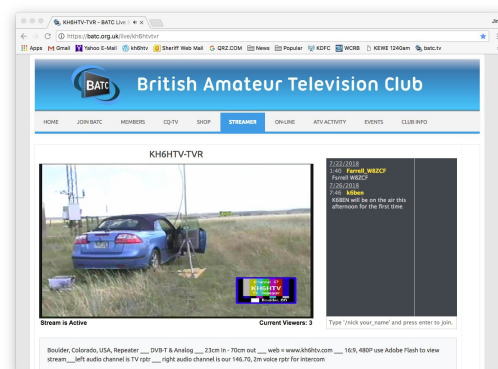
REPEATER STATUS: The repeater is alive and well and functioning normally. Recently, Don, N0YE, and Jim, KH6HTV, made a visit to the site to deal with a few minor issues. A sturdier mounting bracket was installed for the tri-band, receive antenna along with a lightning arrestor. Bill, K0RZ, donated a commercial, 2 meter, cavity filter (Big !, the size of pony beer keg !) to be used on the 70cm receiver to try to resolve the overloading from the BARC 146.70 FM voice repeater. It provides a -18dB notch on 146.70. This was installed by Don & Jim. Results are inconclusive. The major RFI is apparent only when receiving analog, NTSC, TV on Ch. 60. DVB-T transmissions are much more immune to such RFI.

Our host for the repeater site has asked that we not disclose the location of the repeater. Thus, all mention of the site has been removed from our web site and publications. A new video, slide-show, .mp4 file was installed on the Raspberry-Pi computer which provides our ID and BEACON video. The new video no longer mentions where the site is located. The only geographical location given now is "High mesa south-west of Boulder" and a red tear-drop on the coverage maps. Please, no longer mention the name of the facility where the repeater is located when discussing it over the air, either on FM voice or on TV.

Details about the repeater are available on our web site: www.kh6htv.com AN-43 gives all the technical details.

BATC Streaming On-Line Again

In June, we started streaming our TV repeater's video via the British Amateur TV Clubs' server. A controversy developed in the group about streaming. Thus, the stream was discontinued. However, a vast majority of the group have since expressed support for streaming. Therefore, it is again available on-line. The link to the BATC server is: <https://batc.org.uk/live/> To select our stream, click on "KH6HTV-TVTR".



TV NET: We hold a weekly, informal, TV activity net on Thursday afternoons. The "live" net starts at 3 pm local time (21:00 UTC summer). Don, N0YE, is the net control station. We use the BARC, 2 meter, 146.70MHz, FM voice repeater for our audio intercom. This repeater is co-located at the same site as the TV repeater and has a similar coverage area. There is typically a video signal on the air for about an hour prior to the commencement of the net. It is either the repeater's Beacon mode slide show, or a member's travel video, etc. Also following the actual net, there is also typically an additional appendix of a travel video, etc. for another 1/2 hour or so. The net format is for all participants to check in initially on 2 meter voice. Don then assigns one station at a time to transmit their video. Each participant then discusses their past week's activities, shows a current "home-brew" project, and perhaps shares a video or slide show. The "live" portion of the net typically runs 1 to 1 1/2 hours in length. The output of the TV repeater is on Ch 57 (423MHz) in DVB-T digital TV. It is also capable of transmitting analog, NTSC, but we rarely use this mode. Most TV hams are now inputting a DVB-T signal on 23 cms (1243MHz). The repeater also supports the 70cm band and analog modes. Some hams are transmitting analog, NTSC, on 70cm, ch 60, while others are transmitting FM-TV on 23cm (1247MHz). Don, as the control operator, changes the repeater's receiving band/mode as needed. It does not switch automatically.

We encourage all hams to participate in the TV net and check in on 2 meters FM voice, even if they do not have video equipment. Those without a TV receiver can still watch the net on-line via the BATC stream. The 2m FM voice channel is also streamed on one channel of the stereo audio stream.

NEW VIEWER: We welcome Ed, K0JOY, to our growing list of DTV viewers. Ed recently purchased a "combo" DVB-S / DVB-T receiver. His first TV antenna was a broadcast, bow-tie, but mounted for vertical polarization. Ed lives north-west of Boulder on a ridge line near Old Stage road and Left Hand Canyon. Computer predictions said he should have a strong 20dB margin at his QTH. He received a good picture last week when he first tried out his new receiver watching the Thursday TV net. He took a photo of net control, N0YE, to document his success. He tried to check into the 2 m TV net, but discovered his mike was dead. Better luck next time, Ed.

NEW DTV BOOK: Jim, KH6HTV, has just released a new book entitled "*Introduction to Amateur Digital Television*". Jim's web site contains a huge number (>40) of application notes related to amateur TV, both earlier analog and now digital. The sheer volume of app. notes was bewildering to the casual visitor to the site. The new book is an attempt to pull together the info scattered over the > 40 app. notes. Topics covered in the book include: DTV modulation standards, TV bands, video sources, transmitters (modulators & amplifiers), receivers, antennas, propagation, repeaters, and ARES applications. The book is free and available to be downloaded in .pdf format. To get your copy, go to the repeater's web site: www.kh6htv.com



Naomi & her TV transmitter



Roger building his TV antenna tower

HAM SHACK VISITS KD0PDZ & K0IHX

This month, we visit the ham shack of YL **Naomi, KD0PDZ**, and her OM, **Roger, K0IHX**. They live on the top of Davidson Mesa, south-east of Boulder with an excellent 360 degree view from Wyoming to the north to Pike's Peak in the south. They are long-term residents of Boulder, having moved here in the mid 50s when Roger took a job with NBS working on HF propagation research. Naomi's career was in public school education.

*off the air photo via tv repeater*

Roger's career was in radio research and later federal telecommunications policy. They built their Davidson mesa home soon after moving to Boulder and have lived there ever since.

Naomi participated in the ARRL Teachers Institute in 2008. She then got her ham ticket in 2011 with the call KD0PDZ. Roger got his ham ticket in Connecticut in 1951. Roger, as a teenager, was actually employed in the early TV industry. In 1948, he operated a TV relay station to relay signals from New York City to New Haven, Connecticut.

Roger and Naomi's interest in TV was re-kindled in 2008 when they purchased a 70cm, analog TV transmitter from Jim, KH6HTV, and started using the Boulder TV repeater. They soon assembled a mobile TV station and enlisted their son to participate in mobile TV experiments. Roger put up a tower and antennas for ham TV along with a tower mounted TV camera. They also participated in some long distance, ATV dx experiments. They have also experimented with 3-D and 360° TV cameras. As the TV scene in Boulder migrated to digital TV, they were early converts. Today, they have TV transmitters, for both analog and digital on 70cm and 23cm. They also have brought their grandson, Zach, KE0OJO, into the ham TV community. Zach, with Grandpa's help now has his

own DTV station in Mead. Most recently, Naomi & Roger hosted the TV repeater at their Davidson mesa QTH, prior to our finding it's (hopefully) permanent, current home on the mesa south-west of Boulder.

ANTENNA & PROPAGATION MYTHS

Does reciprocity hold for the transmit and receive characteristics of antennas ?

Is the path loss in rf propagation frequency dependent ?

The answers are both Yes & No ? In the frequency domain for narrowband signals, the answers are Yes. In the time domain for wideband signals, the answers are No. Want to hear more ? Then tune in this next week to the Boulder TV net.

A week ago, at the Friday ham breakfast, I was talking about antenna research with Ed, K0JOY. Ed is a retired EE prof. from Georgia Tech. His specialty is antennas. I was telling Ed about some antenna research I did many years ago in the 70s while at NBS, and again in the early 2000s at PSPL. This led me to dig out for Ed, an old paper of mine on "UWB Signal Sources, Antennas & Propagation". It was a paper I presented at the 2002 IEEE conference on Wireless Communication Technology, held in Honolulu. The paper is available as PSPL application note, AN-14a on my web site: www.kh6htv.com

I then recalled that I had also recorded the talk on a DVD. Digging into my stack of old home videos, I found the DVD. I plan to air this DVD, this coming Thursday, Sept. 13th, on the Boulder TV net. Tune in to hear the talk.

BARC SWAP-FEST: The annual Boulder Amateur Radio Club's Swap-Fest will be held on Sunday morning, October 7th. It will be in the usual location of the Boulder County Fairgrounds, Hover & Nelson Roads, in Longmont. For more information, or table rentals, contact Mike Derr, W3DIF, at mderr44995@aol.com

The TV repeater will have a display table at the swap-fest. If you can help out at the table recruiting new ATV hams, then plan to drop by the table and talk up ATV to table visitors.

BATC Annual Meeting

The annual meeting of the BATC will be held this next weekend. The proceedings will be streamed live from their web site. Hopefully, we will also be able to air them over our local TV repeater.



HAM BREAKFAST: Interested in ham & eggs, with ham eyeball QSOs on the side ? Then join a growing group of hams, including many ATVers for breakfast on Friday mornings. As the group has grown larger, we have had to move around to various restaurants. We are presently meeting at Doug's Dinner, located on the south-east corner of Folsom and Arapahoe in Boulder. The group typically starts gathering around 7am and orders from the menu about 7:30. We have a single ticket and share equally the cost with Larry, K0PYX, being the treasurer. The cost is typically about \$12 including tax & tip.



COMBO DTV RECEIVER: Most Boulder ATV hams are now using what we have been calling the "combo" DVB-T receiver. We called it the combo, because it worked for both DVB-T and DVB-S. This is a consumer grade, set-top box receiver from China made for the European market. I discovered this box in 2016 and found that it tuned directly the ham 70cm band. I thus imported a bunch of them and have been reselling them. This past winter, Colin, WA2YUN, and also an ATV ham in Baltimore, MD, informed me that the units now coming from China look identical, but have different firmware installed in them and they unfortunately, no longer will tune the 70cm band. Bummer !!! Thus, your old combo receivers are now rare and valuable. At this point, I only have one, single combo receiver left for sale. I am withholding it from the general market and will only sell it to a truly interested ham wanting to get started in ATV.

FREE 70cm ANTENNA: I have a surplus, 70cm, yagi antenna. It is free to an interested local ATV ham. It is an old KLM yagi with 10 elements on a 6 ft. boom with a type N connector. It is end mounted. It is broad band and covers the whole 70cm band with about 14dBi gain. It is missing the mounting hardware.

Future Newsletters: If you have ATV contributions for future newsletters, please send them to me. Jim Andrews, KH6HTV, email = kh6htv@arrl.net