Amateur Television Journal

July, 2025
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BATVC web site: www.kh6htv.com

ATN web site: www.atn-tv.com

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New Application Notes:

Jim, KH6HTV, has released three new application notes dealing with how to build basic DVB-T repeaters. The first is a 70cm to 23cm cross-band repeater. The second is a 23cm to 70cm repeater. The third is an in-band 70cm repeater. They include cost estimates for the major components involved. They are all based upon real prototype repeaters built by KH6HTV. They were all built in a rugged 19" rack 6 U transport case. They have all been operationally tested. To read the app. notes, go to Jim's web site, ***www.kh6htv.com***, and download the .pdf files for AN-69a, AN-70 & AN-71.

HELP NEEDED ! This issue of your ATV Journal is quite lean on ATV content. We need you, our readers, to share your ATV stories with the rest of us. This newsletter goes out to over 800 ATV hams, both in the USA and overseas. Surely, some of you are active in ATV and have interesting things to tell the rest of us. It can be some new gear you bought or built and have evaluated. Do you have an active ATV repeater club ? Tell us about it.

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Boulder Amateur Radio Club, BARC's Field Day Operation

The site in Betasso open space park

The shelter house was great for eye-ball QSOs

The 40 meter CW tent

The 20 meter SSB tent

Once again BARC operated field day from a great location in the mountains in the western part of Boulder County. We were at Boulder County's open space Betasso Park. The exact location was: 40º 0' 56.85" N x 105º 20' 40.85" W in grid square DN70ha. The elevation was 6550 ft ASL. Over night camping is not allowed in the park. However, BARC has always been given a special permit from the county to allow us to stay overnite for the the 24 hour field day event. The permit also gave us permission to reserve for our use the shelter house. We used the shelter house for our meeting and gathering space for eye-ball QSOs and meals. We operated under the designation 3A-CO meaning we had three transmitters and were in the Colorado section. Our main stations were in separate tents. One was for our CW station, mainly operating on 40 meters. It used a horizontal delta loop antenna strung up high in the pine trees. Our other main station was for SSB on 20 meters. It used Allen, K0ARK's big Step-IR antenna. Our third station was digital only working FT-8 on 15 meters. It was set up on a table in the shelter house.

K0ARK's Step-IR Antenna

There was a great turn out of lots of BARC members to help setup, operate and tear down. Plus there was lots of eye-balling QSOs going on continuously in the shelter house. Lee, N4TCW, was our chef extrodinare with his famous chilli. The results of the contest are not yet tabulated. But BARC always comes in close to the top among the Colorado clubs participating in Field Day. Our mountain top location and Allen's big 20 meter antenna allow us to command a calling frequency and just sit back and let other stations call us and fill up our log book with contacts.

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KH6HTV Field Day

KH6HTV - Field Day: I have been frustrated in the past with not being able to operate the BARC SSB station on Field Day. The only time I was ever able to get to the mike was if I stayed overnite and sat at the operating position at 3 am in the middle of the night when no one else wanted to

operate. There were always lots of BARC members showing up for Field day, especially on Saturday. This year there were over 25 present. However, most of them never got an opportunity to operate the stations. The great operators always seemed to latch on to the mike or key and sit there for hours on end. While they make for large numbers of contacts in the logs, many of us were leFt just sitting there watching.

So, this year I decided to try my hand at single operator field day. But from a great mountain top, RF quiet location. My home QTH is horrible for RF. I have local broadband RF noise which essentially makes HF unusable over 90% of the time. I see S7 to S9 noise on all bands up to 10 meters. If I want to work HF, it can't be from home, but must be mobile or portable from some quiet location.

This year I set up my gear in the east Betasso parking lot about 1/2 mile away from the BARC operation. I used my Icom IC-7300 along with a set of MFJ "Ham Stick" mobile antennas. I used a MFJ large mag. mount on the trunk of my Saab convertible along with an extra 50 ft. of RG-58 coax. I set up on a camp table in the shade of some pine trees. I used a LiFePO4 battery for power. I operated as 1B-CO. The above photos show the great view from the operating location looking out over the city of Boulder in the distance.

My station didn't compare well to the BARC 20 meter SSB station. I managed very few contacts, but I did log a few. I operated only on Saturday from about 1 pm to 3:30 pm. The first hour was on 20 meters with the spectrum full of signals. I managed to get six contacts. The next 3/4 hour was on 15 meters. Much fewer stations there which made contacts easier. I got six more. I then briefly tried 10 and 6 meters. 10 meters was essentially empty, but propagation was open at least to the west as I was able to copy stations in Washington and California. I only logged one contact each on both 10 and 6 and they were to the same ham, WA0SPM, a local in Lafayette, CO.

73 & Aloha de Jim, KH6HTV

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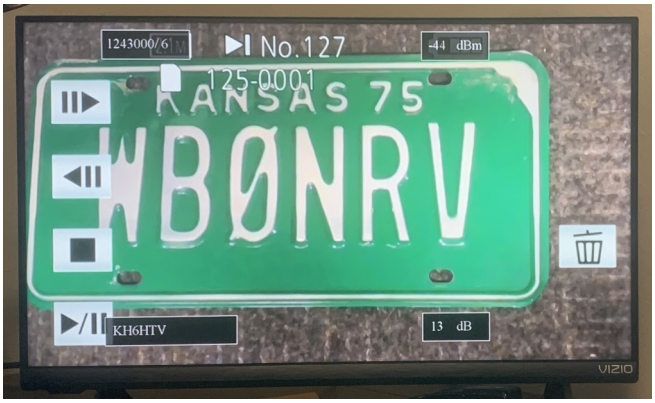

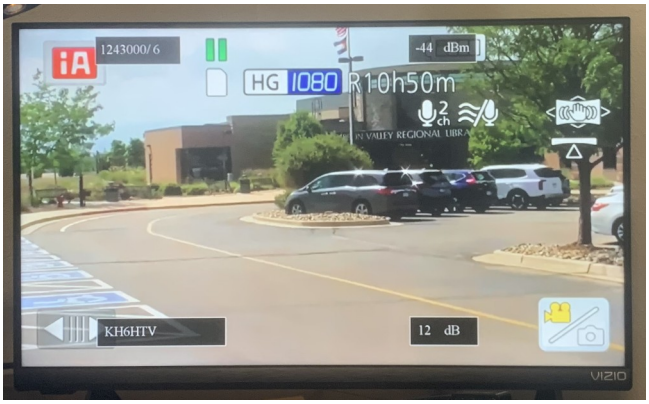

WELCOME BOB, WB0NRV

On the Boulder weekly ATV net last Thursday, June 26th, we welcomed a new (old) ATVer. Bob, WB0NRV, was finally able to get a 23cm, DVB-T signal into the W0BTV ATV repeater in Boulder. Bob has been a regular participant in our nets, but only receiving the 70cm output from our repeater.

Bob has a long history with ATV in the analog days when he lived in the Wichita, Kansas area. He now lives in Firestone, out on the eastern prairie of Colorado. His distance to the repeater is 21 miles (34 km). At his QTH, he has local obstructions blocking his rf path. On last Thursday, Bob was out mobile ATV at the Firestone library. From there he was able to put a good signal into the repeater. The repeater reports on screen with an S meter a value in dBm. See the photo. The value shown is -41dBm. The receiver has a known calibrated offset of 41dB. Thus Bob's signal at the input to the repeater's 23cm receiver was -82dBm with a signal to noise ratio of 13dB.

Bob was testing his setup at the library in preparation for Field Day. His Weld County club was going to use the library area for their field day operation. Bob planned to have ATV operational at the site as a demonstration of other modes of RF communications. We hope Bob will give us a report, complete with photos, for our next issue of this ATV Journal.

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W0BTV Details:

Inputs: 23 cm Primary (CCARC co-ordinated) + 70 cm & 3 cm secondary all digital using European Broadcast TV standard, DVB-T with standard 6 MHz wide TV channels. Frequencies listed are the center frequency of the TV channel.
23 cm = 1243 MHz (primary), 70 cm = 441 MHz & 3 cm = 10.380 GHz
Outputs: 70 cm Primary (CCARC co-ordinated), Channel 57 -- 423 MHz with 6 MHz BW, DVB-T
Also, secondary analog, NTSC, FM-TV output on 5.905 GHz (24/7 microwave beacon).
Operational details in AN-51d Technical details in AN-53d. 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. ATV nets are streamed live using the British Amateur TV Club's server, via: ***https://batc.org.uk/live/*** Select ***ab0my or n0ye***. 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 newsletter was started in 2018 and originally published under the title "*Boulder Amateur Television Club - TV Repeater's REPEATER*" Starting with issue #166, July, 2024, we have changed the title to "*Amateur Television Journal.*" This reflects the fact that it has grown from being simply a local club's newsletter to become the "de-facto" ATV newsletter for the USA and overseas hams. This is a free ATV newsletter distributed electronically via e-mail to ATV hams. The distribution list has now grown to over 800+, both in the USA and overseas. 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/

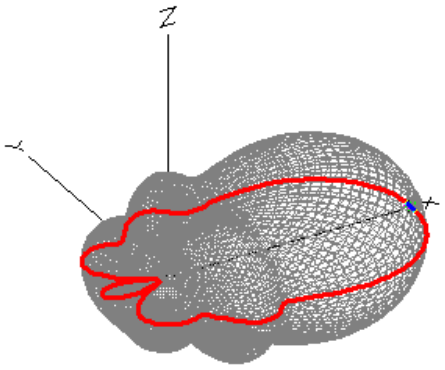
ATV HAM ADS -- *Free advertising space is offered here to ATV hams, ham clubs or ARES groups. List here amateur radio & TV gear*

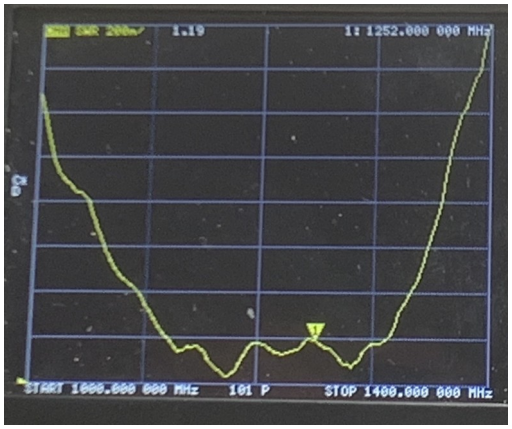
For Sale - or - Want to Buy

New Product Announcement
23cm Patch Antenna for sale -- $ 105

The KH6HTV-VIDEO Model 23-14PA is a mid-range gain, patch antenna for the amateur radio 23cm band. It's gain of +12dBi is comparable to a 6 element, conventional Yagi. But the antenna is overall smaller, lighter weight and more convenient to handle, especially for out in the field ARES portable operations.

PARAMETER	typical performance	notes
Frequency Range	1.1 to 1.35 GHz	< 2 : 1 vswr
Gain	12dBi	similar to 6 element Yagi
Beam Width	55 deg, nominal	-3dB
Front to Back Ratio	> 20dB	
VSWR	< 1.5 : 1	23cm (1.24 - 1.3GHz)
Polarization	Vertical	
CW Power	100 Watts, max.	
Connector	N female	
Dimensions	9 1/2"x8 1/2"x2" antenna	11 1/4"x3 7/8" mounting bracket
Weight	1.5 kg	
Beam Tilt	Yes	with adj. mounting hardware





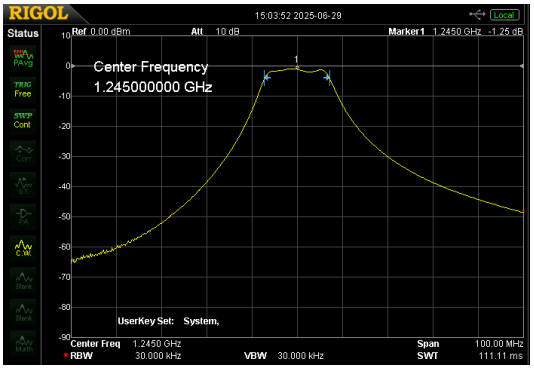
LEFT: 3D Antenna Pattern Plot (from EZNEC) RIGHT: NanoVNA measurement of VSWR from 1.0 to 1.4GHz, 0.2 units/div. vertical

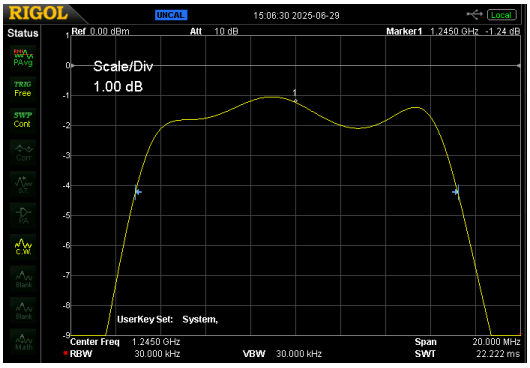
KH6HTV-VIDEO Boulder, CO USA www.kh6htv.com kh6htv@arrl.net 303-594-2547

New Product Announcement
23cm Band-Pass Filter for sale -- $ 60

Model 23-NB BPF
23 cm
BAND-PASS
FILTER

The KH6HTV VIDEO Model 23-NB BPF is a Band-Pass Filter for the amateur radio 23 cm band (1.24-1.3 GHz). It features a narrow 3 dB bandwidth of 15 MHz with 1.5 dB insertion loss.





S21 vs. Frequency: center frequency = 1245 MHz,
Left: 10dB/div & 10 MHz/div Right: 1dB/div & 2MHz/div.

Parameter	typical	notes
Center Frequency	1.24 to 1.30 GHz	specify desired frequency when ordering
-3dB Band-Width	15 MHz	
-30dB Band-Width	37 MHz	
-50dB Band-Width	85 MHz	
Insertion Loss	1.5 dB	
RF connectors	SMA	
Dimensions	4.4"x2.4"x1.2"	excluding SMAs & tuning screws
Test Report	included at no charge. includes S21 plots shown above	

KH6HTV-VIDEO www.kh6htv.com e-mail: kh6htv@arrl.net Boulder, Colorado, USA