Boulder Amateur Television Club
TV Repeater's REPEATER

June, 2021
issue #78

BATVC web site: www.kh6htv.com

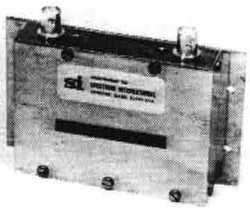
ATN web site: www.atn-tv.com

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

New Hampshire ATVers on QST

The cover of the June issue of QST features the Nashua, NH ham club Field Day. In the foreground are ATVers Anita & Fred Kemmerer, AB1QB & AB1OC

VHF/UHF BANDPASS FILTERS



KNOCK OUT INTERFERING QRM OR SELF-DESENSE!

BNC Standard
TNC or Type 'N' optional
(slightly higher prices)

The PSf . . . series of Band Filters are for receiver pre-selector and transmitter use. The filters are 3 pole, 7% band-width, 0.1 dB ripple designs with 30 dB shape factor of 4:1.

The PSf . . . ATV series of TV Channel Filters are 5 pole, 6 MHz bandwidth designs. They are used to protect your TV receiver from inband QRM and to "strip-off" the unwanted sideband of your transmitted vestigial sideband signal.

Model	PSf144	PSf220	PSf432	PSf900	PSf1296	PSf1691
Freq (MHz)	140-150	216-228	420-450	890-940	1250-1340	1650-1750
Loss (typ)	0.1 dB	0.1 dB	0.15 dB	0.2 dB	0.25 dB	0.25 dB
	$190.00	$160.00	$105.00	$105.00	$105.00	$105.00

Model	PSf421-ATV	PSf426-ATV	PSf439-ATV	PSf910-ATV	PSf1253-ATV
Loss (typ)	2.0 dB	2.0 dB	2.0 dB	2.5 dB	3.0 dB
Std conns.	BNC	BNC	BNC	N	N
	$155.00	$155.00	$155.00	$180.00	$180.00

All prices FOB Concord, Mass.

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JAN., FEB., MARCH 1993 VOL. 6 #1 PAGE 3

In the previous issue #76, Byron, W5FH was inquiring about data for the Spectrum International Band-Pass Filters. In the documentation for Bill, K0RZ's, 70cm ATV transmitter, I found this old advertisement from 1993 which gives some of the specs. SI was run by John Beanland, G3BVU/W1 who is now a SK. For more details on the detailed construction of these 6 MHz band-width ATV channel filters, see the KH6HTV application note, AN-22b, "Inter-Digital Band-Pass Filters", July, 2015. Available at: https://kh6htv.com/application-notes/

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From: Bob Witte (K0NR) <bob@k0nr.com>
To: CCARC
Sent: Thu, May 20, 2021 10:19 am

Subject: **Source of Funds for Amateur Radio Club Projects**

I'd like to call your attention to a relatively new source of funding for amateur radio club projects from Amateur Radio Digital Communications (ARDC). You may know this organization from their work with AMPRNet (also known as the 44 network).

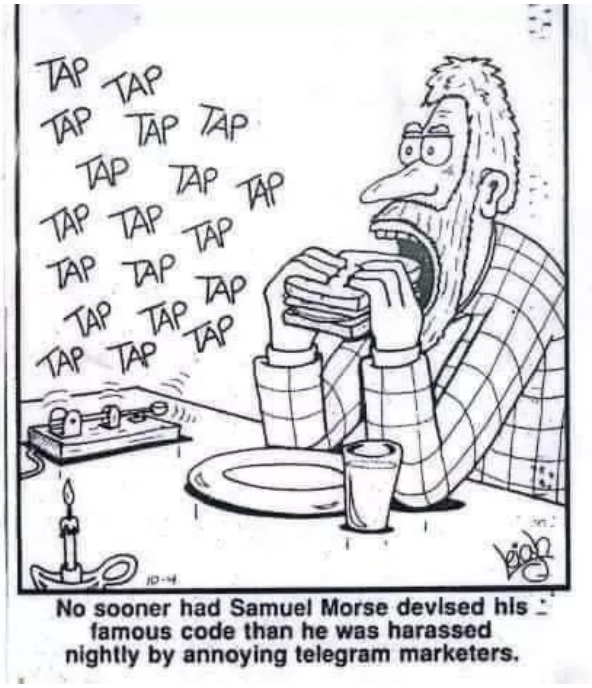
I won't go into all of the history but the leadership of ARDC recognized that the huge block of IP addresses set aside for ham use would never be fully used. So the Board of Directors sold a portion of these addresses for a significant sum of money. They also wisely concluded that the funds generated from this sale should be used to benefit the amateur radio community as a whole and created a grants program to accomplish that. In

2020, they donated about $3M to various projects (https://www.ampr.org/grants/). The goal for 2021 is to grant an even larger amount.

Earlier this year, ARDC published a Request for Proposals for Amateur Radio Clubs: https://www.ampr.org/wp-content/uploads/2021-03-ardc-amateur-radio-club.pdf
There is a useful blog post with video that discusses ARDC's activities here: https://www.kb6nu.com/ardc-talks-about-their-grant-process-with-ratpac/

I am serving on the ARDC Grants Advisory Committee that reviews grant proposals and makes recommendations to the ARDC Board. (Final decision-making on grants rests with the Board.) We are seeing a wide range of grant proposals. Some of these are aggressive projects that develop new technology (hardware and/or software), but some of them are upgrades to club stations, repeaters and digital infrastructure. So your club may have a project that lines up with ARDC objectives. I am happy to discuss this opportunity with you, but you'll also need to follow the grant submission guidelines on the ARDC website. See https://www.ampr.org/grantmaking-categories-requirements-goals/

73 de Bob Witte, K0NR bob@k0nr.com

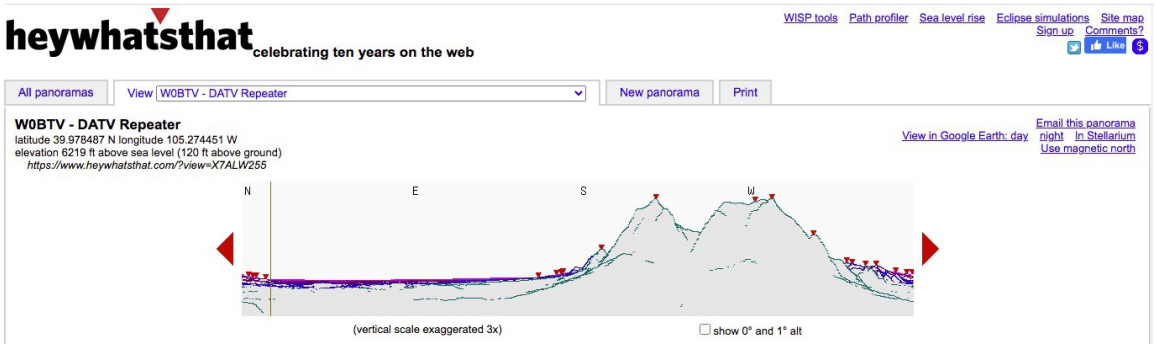


Tnx to Ken, KV5Y, for sending us this cartoon

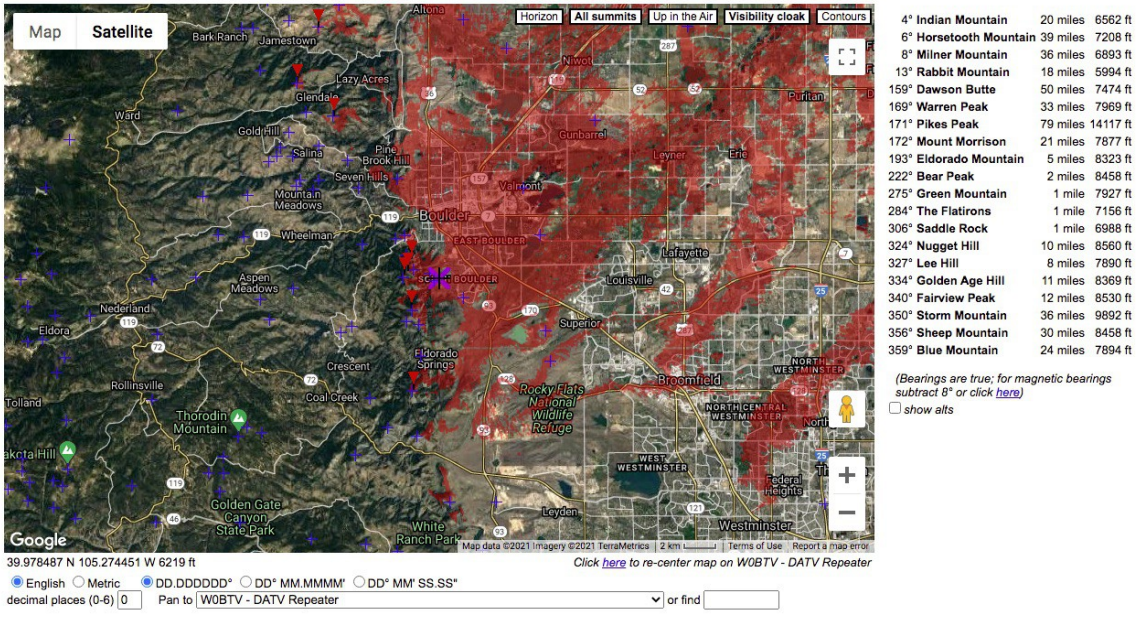
NEW RF PATH MAPPING PROGRAM

Don, N0YE, has just called our attention to a free, on-line, program for looking at possible RF path profiles, which he just discovered. It is found at: ***www.heywhatsthat.com*** Check it out. It looks to be a really cool tool for VHF/UHF/microwave work where we need to know where we can find true line-of-sight RF paths. This tool seems to be oriented towards Summits-On-The-Air (SOTA)

operations as it IDs all nearby summits of hills and mountains. When you go to the web site, it already has a lot of sites included which you can use as examples. But, you can also enter your own site into the data base. So, to try it out, I entered our own DATV repeater, W0BTV's site. I entered the latitude and longitude and told it the height of our antenna was about 120 ft above the ground level. So go give it a try. You will be able to get a good visual idea of the coverage area of our repeater. Here is what will come up on your screen.



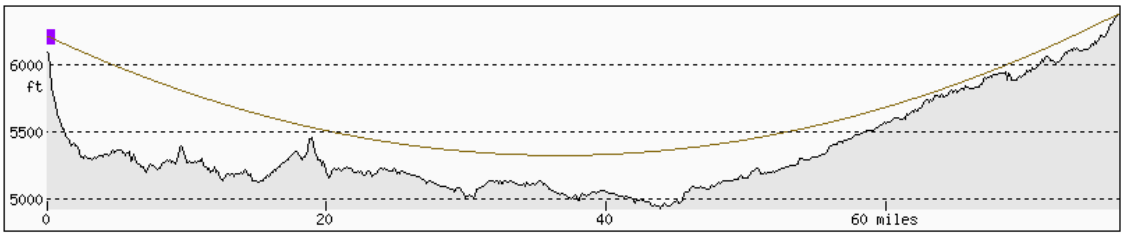
This first view is a 360° panoramic view as seen from the W0BTV antenna. Scrolling down on the screen, you will then see this.



You can select seeing this either in Map format or Satellite, aerial photo view. This is the aerial photo view. It is hard to see here on the newsletter page, but the repeater's location is in the center and indicated by a purple plus sign (+). The red shaded areas indicated visual line-of-sight to/from the repeater. The table on the right lists all the major summits visible from the repeater with bearings, distances and elevations. By clicking on the boxes in the upper right, you can get other useful information.

You can also check out a specific path from the repeater to say your own QTH. With your mouse cursor, position it over your QTH and click your mouse. This will put a black plus sign (+) on your QTH and draw a yellow line from the repeater to your QTH. Now scroll up on the page and you will see the RF path profile drawn from the repeater to your QTH. You can move the map around the same as using Google maps or Google Earth by clicking on the + & - buttons and dragging your mouse. Thus you can move to your QTH and expand the map as needed to precisely locate your own antenna site.

I next tried this by going all the way north on the map up to Cheyenne, Wyoming. I found on the map, the ATV-DX site that Don, AA6TV, and I used back in July, 2018. (*Unfortunately, Don is now a SK*) We had driven north to Cheyenne to test out the extreme coverage area of our then new ATV repeater site. We were able to successfully have two way DATV QSOs with the Boulder hams from the site via the repeater. We had set up next to a microwave tower on the west side of I-25, a bit south of the city of Cheyenne, and just north of the Colorado - Wyoming border. The below, next aerial photo shows where we set up with the black plus sign (+) showing the exact location. Note the "heywhatsthat" red shading on the image. This shows the areas with line-of-sight back to the W0BTV repeater. It thus appears we had set up just on the fringe of the possible coverage area. We thus "lucked out ! "



This plot now shows the rf path profile from the W0BTV repeater on the left to our ATV-DX Wyoming site on the right. Note the circular dip in the yellow path line. This is following the curvature of the earth. From the profile, it appears that we were quite lucky in selection of this particular site. The lowest spot in the profile is the Cache la Poudre river valley in the Ft. Collins area.

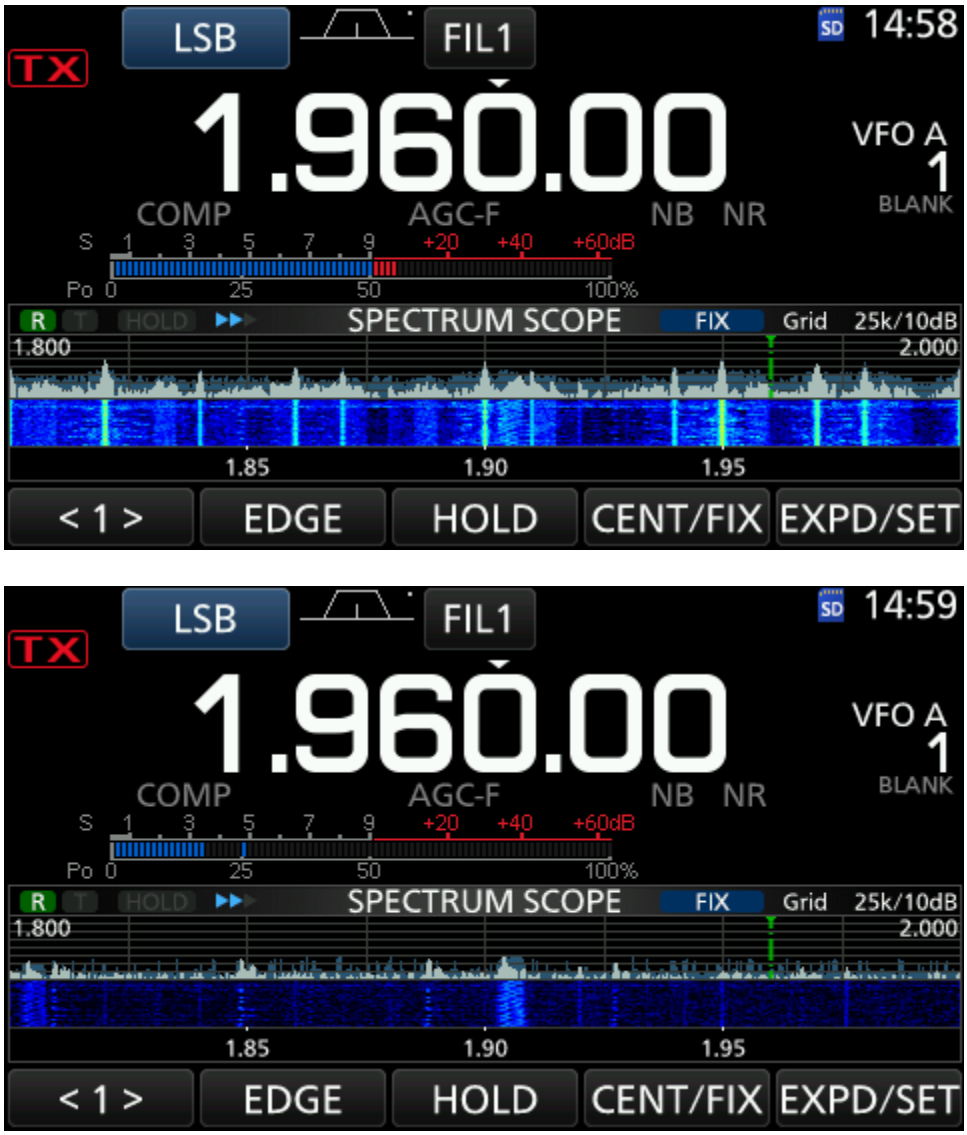
Jim, KH6HTV, Boulder, CO

160 Meter - BCI issues for IC-7300

I love my Icom IC-7300 HF rig. However, it's performance on 160 meters is marginal due to severe BCI, i.e. Broadcast Interference from commercial AM radio stations in the broadcast band (525 - 1705 kHz). With a dipole antenna connected to the IC-7300, the 160 m band is contaminated with inter-mod products from multiple AM stations. They are easily identified by listening to the resultant music and talk show chatter.

I was recently chatting on 40 meters PSK-31 with my friend, Mark, K5MGK, in Silver City, New Mexico. Mark mentioned having BCI issues from a near-by AM broadcast

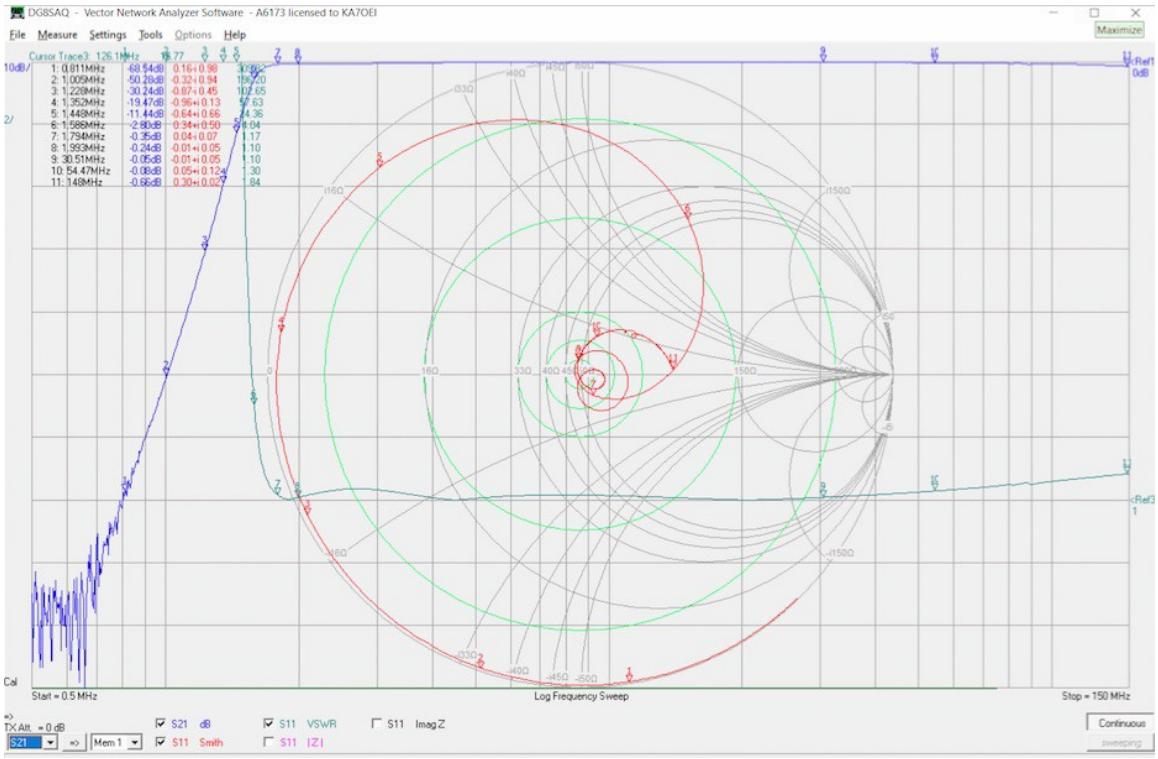
staton clobbering his rig on 80 meters. I said I had similar issues here with my IC-7300 on 160 meters. Mark said he solved his problem by purchasing a High-Pass Filter from Morgan Systems. So following Mark's advice, I purchased a 1.8 MHz high-pass filter from Morgan and installed it on the antenna input to my IC-7300. It cleaned up the AM BCI for me on 160m. See below the before and after spectrum plots for my IC-7300.



IC-7300 spectrum display of 160 meter band before (top) and after (bottom) adding the 1.8 MHz High-Pass Filter (3pm)

The web site for Morgan Systems is: *www.surgestop.com* The 1.8 MHz HPF model is M-402. The price is $73.50. They also sell a 3.5 MHz HPF as the model M-400, also for $73.50. It has even more rejection of the AM BCI if you only want to work 80 meters and higher.

Jim, KH6HTV, Boulder, CO



S21 Frequency Response of Morgan Systems, Model M-402, 1.8 MHz High-Pass Filter

For those ATV newsletter readers not familiar with Boulder, Colorado, here is an aerial photo showing the location of our W0BTV, DATV repeater. It is located on the mesa in the lower center of the photo. This mesa is south-west of the city of Boulder. The mesa is about 800 ft. above the city. This view is looking to the west-north-west. In the

foreground is the first range of the Rocky mountains and these particular mountains, we call the Flatiron mountains. This is because they look like a flat iron for ironing clothes sitting on it's end. The peaks in the far distance are the Continental Divide with elevations of 13 to 14,000 ft. You now see why our RF coverage maps and the map shown on the previous page says our repeater does not penentrate into the mountainous portion of Boulder County. The eastern portion of Boulder county is flat, rolling prarie at an elevation of about 1 mile. Our repeater does give good coverage over the eastern half of the county.

W0BTV Details:

Inputs: 439.25MHz, analog NTSC, VUSB-TV; 441MHz/6MHz BW, DVB-T & 1243MHz/6MHz BW, DVB-T
Outputs: Channel 57 --- 423MHz/6MHz BW, DVB-T, or optional 421.25MHz, 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. 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*. We use the Boulder ARES (BCARES) 2 meter FM voice repeater for intercom. 146.760 MHz (-600kHz, 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 over 400. 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.**

FREE -- TV CAMERA

Panasonic model PC-K1000A in working condition. Uses a color Saticon image tube. Wide/Telephoto lens. B&W view finder. Analog composite video & stereo line level audio outputs. Requires +12Vdc power. Includes cable and A/V & DC power break-out box. Will not ship. Available free only to Boulder area hams. contact Jim, KH6HTV kh6htv@arrl.net

SLATS

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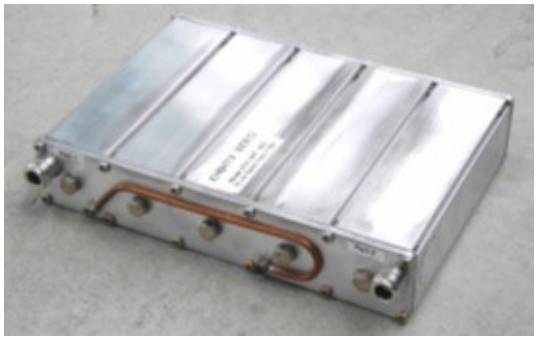
Buy - Sell - Trade - Giveaway

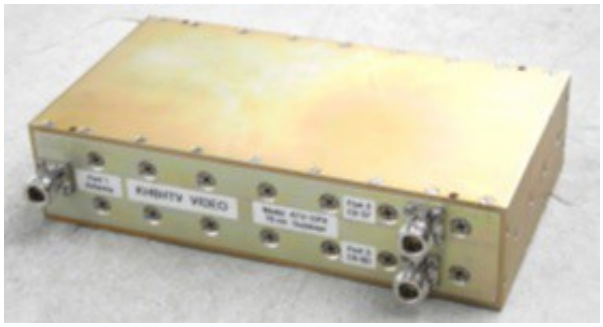
(web site: http://www.slatsatn.net/?page_id=713)

Check it out. New items listed every week

Items such as: R8 Vert Ant, Remote Antenna Tuner, Antenna Bridge, DEMI Amp, ATV ID-Maker, HiDes UT-120, NTSC Waveform Monitor & Vectorscope & More!

CLEARANCE SALE
70cm Band-Pass Filters & Duplexers





$ 100 each

Two years ago, I found a source of both band-pass filters and duplexers for the 70cm band. I thought there would be a market for such components in Amateur TV. They should have been of interest to hams wanting to build ATV repeaters. I offered to sell them, tuned up on my network analyzer for any desired frequency in the 70cm amateur

band (420 - 450 MHz). I was wrong. No sales. I am left stuck with a shelf full of these filters & duplexers. I want to unload them. I am willing to sell them at cost, plus shipping. **My price is $100 each.** They will not be tuned to any specific frequency. You will have to tune them up yourself. They will be shipped via USPS priority mail in a medium size, flat rate, carton. The shipping cost is $16. I have sold a few of these already at this discounted price, but I still have a few left to unload. Interested ?

These are quality machined items and they originally cost much more. The band-pass filter was made by Ericson as their model KRF-201. The duplexer was made by Microwave Solutions. For more details, see the spec. sheets on my web site for the model ATV-BPF-XXX & model ATV-DPX. My web site is: **www.kh6htv.com**

To order, send an e-mail to: Jim, KH6HTV, at kh6htv@arrl.net