Amateur Television Journal

March, 2026
issue #203
BATVC web site: www.kh6htv.com
ATN web site: www.atn-tv.com

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Repeater Directory Feedback:

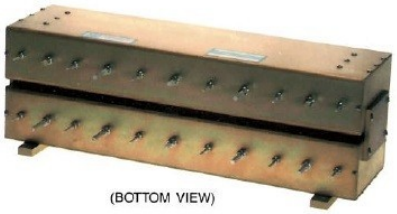
Fortunately, our publishing the updated directory in the last issue, woke up some folks. When I did my recent survey I tried to contact all of the repeaters listed in 2019 but didn't hear back from a lot of them. I also tried other sources, again with almost zero success. So we can happily announce there are actually a few more ATV repeaters in the USA than previous reported. Here are the latest updates, we have received. Hopefully, we will eventually hear from more. If your repeater isn't listed, please let us know.

New Orleans, Louisiana ATV: Jim, -- Your directory did not include the WD0GIV TV repeater on 439.25 in and 421.25out. It is located in Metairie LA. Just outside New Orleans. More specifically it does both analog and digital in and converts them to 8VSB (ATSC) 720P out. It also has a SD 480I .2 channel out. The in is 438 to 444 digital and 420 to 426 out.. I think I am the only one doing 8VSB. That is what 43 years in broadcast TV will do for you.

Richard WD0GIV

I am hoping to get an autodetect digital RX so it will work on any or most digital modes or maybe multiple digital RX`s. . The output is 420 to 426 ATSC 8VSB. Getting a modulator to do 8VSB on a cable channel was a bit of luck. Certian Contemporary Research QMOD`s will do it if you load a specific version of firmware, it was a mistake they made but works great for ATV.

COMBLINE DUPLEXER FOR ATV APPLICATIONS



TX RX SYSTEMS INC.

DUPLEXERS

406-512 MHz

FREQUENCY RANGE MHz (SUB-RANGE)	MODEL NO.	ELECTRICAL						
		MIN. FREQ. SEP. MHz	POWER RATING WATTS	ISOLATION dB		INSER-TION LOSS dB	CAVITIES	
				PER CHAN.	BET. CHAN.		NO.	SIZE
(ATV) 442-450	26-66-01A	6.0	100	70	55	1.2	2	COMBLINE
	28-66-02A	5.0	350	100	46	0.6	4	4" DIA.

ATV Duplexer: I am also including a page from the TX-RX (now part of Bird) catalog that contains a UHF in band duplexer I helped design it with one of the engineers at TX/RX back in 1982. I have serial number one and two. I think they will still make them since they are in the current catalog. It is the best one ever made and it meets spec. for 6 MHz digital. They are not cheap ($1000 in 1982) but worth it. Power limit is 250W. More later.

73 de Richard Bach, WD0GIV

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Portland Oregon ATV: Ed Mellnick, WB2QHS, writes --- We are still kicking in Portland Oregon. 426.25 AM in and 1253 FM out. Club repeater call WA7DRO. We have been on the air now for 35 years. Oregon Amateur TV Assoc. web site is: www.oregonatv.org

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ISS RFI Feedback from the U.K.

Hi Jim, Thanks for the latest newsletter. We have a similar problem receiving the ISS video with wifi interference in the UK (above) but also 5G (below). There is a long thread that covers it and how it was solved on the BATC forum here: https://forum.batc.org.uk/viewtopic.php and the solution for many

bands was found here: http://s53mv.s5tech.net/cavity/cavity.html - scroll down a bit to the table of sizes etc...

Practical cavity filters for the frequency range 1GHz...4GHz

Matjaž Vidmar, S53MV

This excellent article includes 23 different filter designs. BWs range from 8 to 140 MHz.

DVB-S2: I know that the US prefers DVB-T/DVBS but there is an excellent solution to trying DVB-S2 in the new windows-only software from Simon here: https://www.sdr-radio.com/sdr-television-beta-1
With his latest update (due any day now) to V1.07 its very nearly as good as the hardware NIM based solution. Although badged as for the QO-100 satellite and only supporting DVBS-2 it does any rx/tx within the range of both an Adalm Pluto or the similar but cheaper Libres SDR, so 70MHz-6GHz. Just choose from the presets tab, which can be added to as required.

We have found that DVB-S2 at 333kS and either 1/2 or 2/3 FEC give really great results, even on paths that might seem to work, like via aircraft scatter where multi-pathing is common.

Keep up the good work. Best wishes, Gareth Evans, G4XAT, BATC chairman

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FM-TV Equipment Survey:

From the recent survey of existing ATV repeaters in the USA, it is apparent there is still interest in using analog FM modulation for our ATV. However, it has now become very difficult to find any rigs available for sale. Thus potential new ATVers will come up short if they want to do FM-TV with a local repeater. Most of the ATV repeaters listed in the new directory include FM-TV as either an input or output or both on all the ham bands from 900 MHz to 10 GHz, with most in the 23 cm band.

I have tried lots of Google searchs for such FM-TV gear and except for a rare hit or two on E-Bay, I usually find nothing available. The sole exception is the NEW, ICOM IC-905 VHF/UHF/SHF microwave transceiver which does in fact include FM-TV capability. (*The IC-905 has been reviewed in this ATV Journal in several previous issues.*) Another major exception seems to be a lot of FM-TV stuff available for the 5.8 GHz drone FPV (First Person View) market. As a matter of fact, we TV hams in Boulder are using them currently with our W0BTV repeater. Our repeater features an FM-TV transmitter on 5.905 GHz which runs 24/7 as a microwave beacon.

In the days before we discovered affordable digital TV gear, especially DVB-T, most all of us ATV hams were using FM-TV along with our NTSC, VUSB or AM TV gear. We had several low cost suppliers of FM-TV then.

In the 2012-14 time frame, I also thought I saw a market for FM-TV gear for hams. So I developed both a 23 cm FM-TV transmitter and also FM-TV receiver. They were my 23-XX series. Unfortuantely, by that time even, FM-TV was going out of style in the commercial market in favor of the upcoming digital TV. A lot of the semiconductors that had been developed in the 70s & 80s for FM-TV were no longer available in 2012 from normal suppliers such as Mouser, Digi-Key, etc. Being obsolete by then, they were only available from the surplus market and were commanding premium price tags. I had bit the bullet and bought large quantities of them anyway for my new products. But the end result still was I had to charge a premium price tag for my products, with each item being in the $400 price range. The net result was I didn't sell hardly any of my FM-TV products. I kept them in my catalog, but they didn't sell. Fast forward to Dec. 2021 - FIRE ! The disaterous Boulder prairie fire which destroyed 1000+ homes, also destroyed my QTH – and my stock of obsolete FM-TV ICs. So I had to drop those products from my catalog.

So, now here we are in 2026 – seeing the fact that several ATV repeaters still are using FM-TV, I would like to pose this question to our readers ----

Is there any interest in my reviving my line of FM-TV gear for the ATV market ?

If so, are those folks who are interested, also willing to pay premium prices for such gear ?

Series 23-XX FM-TV Summary:

Model 23-8

FM-TV Modulator

The KH6HTV-VIDEO, Model 23-8, is an FM Television Modulator. It is the modulator board from the Model 23-1 transmitter, less the 3 Watt, RF power amplifier. It produces an FM-TV signal with standard definition (480i), NTSC video complete with stereo audio. It is fully synthesized and operates on three programmable channels. It comes factory programmed with the customer specified frequencies. The user can easily reprogram the frequencies later as desired. It is available in two frequency ranges (700-1000 MHz -or- 950-1400 MHz). The max. output power is +17dBm (50mW).

The model 23-8 is extremely simple to use. There are only three front panel controls: Power On/Off, Sound Sub-Carrier On/Off and Channel Selection (A, B or C). The model 23-8 can be readily configured to meet local operating protocols. Internal settings and adjustments that can be set for the user's particular requirements are: Ch A, Ch B & Ch C frequencies, Video Deviation, Video Polarity, Video Pre-Emphasis On/Off, Left & Right Sound Sub-carrier (SSC) frequencies, deviation, and SSC injection level. The model 23-8 is ideal for assembling microwave FM-TV transmitters. It can be used directly on either the 33cm or 23cm bands with a high powered amplifier. For higher microwave

bands, it can be used as the IF input to an upconverting mixer and then feeding a high powered amplifier. It is particularly suitable for point-to-point, microwave, FM-TV, link applications.

Model 23-5

FM-TV De-Modulator

The model 23-5 is a 70 MHz IF amplifier and FM-TV demodulator. It is intended to be used with a microwave down-converter with a 70 MHz IF output. The 23-5 demodulates standard definition (480i), NTSC, composite video and also stereo audio. The 23-5 is a "Universal" unit and was designed with a lot of flexibility to meet varying local standards. FM-TV is not completely standardized like broadcast, NTSC, VUSB-TV. Thus, several different parameters can be reset by the user by moving internal jumpers and adjusting trim pots and caps. They include: video polarity, video bandwidth, video de-emphasis (in/out), video gain, stereo audio sub-carriers' frequencies, audio deemphasis (in/out), and audio gain.

If any of our readers might be interested in either of these above FM-TV products, please let me know. I can also furnish upon request copies of the detailed spec. sheets and the instruction manuals.
p.s. The below model 23-7, 23 cm down converter is presently available for sale. It was originally designed as the companion unit for the 23-5 de-modulator.

73 de Jim Andrews, KH6HTV, Boulder, Colorado

Model 23-7 23cm Down-Converter

The KH6HTV VIDEO Model 23-7 is a high performance, 23cm Down-Converter with 22 dB of conversion gain. The front end pre-amp is the same circuit as used in the model 23-4LNA. It has a flat frequency response across the 23cm band (1240-1300MHz) with a

0.9dB noise figure. The Schotky diode mixer features a high level LO drive. The LO is provided by an easily re-programmable, frequency synthesizer. A three position, front panel toggle switch allows the selection of three pre-programmed LO frequencies. The 23-7 was designed to be a companion unit for use with the model 23-5 IF Amplifier and FM-TV Demodulator to make a complete 23cm, FM-TV Receiver. The 23-7 is ideal for down converting analog FM-TV or VUSB-TV or DTV signals.

A History of USA - ATV Magazines

(tnx to ATN web site www.atn-tv.com)

Editors Henry Ruh, WB8HEE, & Mike Collis, WA6SVT

1962 - 1964 The First ATV Publication "ATV EXPERIMENTER", by Mel Dunbrack (WIBHD)

1967 - 1970 A Second ATV Publication "A5 Magazine", by Donald Lxwine (WB2UMF) and Martin Balk (WBSZW)

1972 - 1974 The Third ATV Publication "A5 Amateur Television Magazine", by Ron Cohen (K3ZKO) and Al Lipkin (W3AEH)

1975 - 1985 The Forth ATV Magazine "A5" (reboot), by Henry Ruh (WBSHEE)

1988 - 1997 The Fifth ATV Magazine "Amateur Television Quarterly", by Bill Brown (WB8ELK) and Henry Rue (WB9FO),

1997 - 2008 "Amateur Television Quarterly (ATVQ)" by Gene Harlan (WBMMM)

2009 - 2017 "Amateur Television Quarterly (ATVQ)" by Mike Collis (WA6SVT) and Bill Brown (WB8ELK)

2017 - 2018 "Amateur Television Quarterly (ATVQ)" by Rod Fritz (WB9KMO)

2018 – present "Boulder TV Repeater's Repeater" (issues 1-166, 2018-2024) then name changed to "ATV Journal", by Jim Andrews (KH6HTV)

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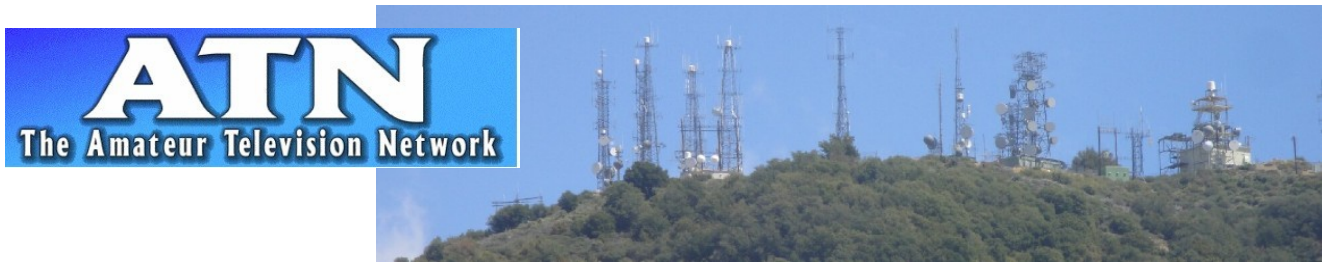
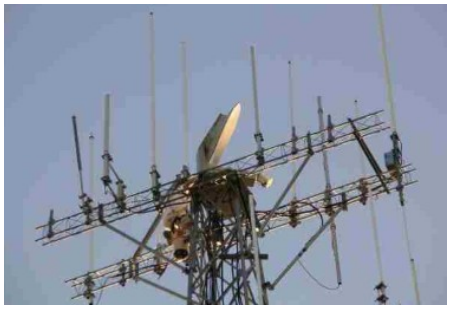


The Amateur Television Network (ATN) was started many years ago by a group at ATVers in Southern California. It grew from one ATV repeater to a NETWORK of microwave linked repeaters known as the Amateur Television Network. It currently consists of five repeaters operating under the club's call sign of W6ATN and one under WB9KMO. The various repeaters are located on mountain tops scattered around southern California. They are: Santiago Peak, Mt. Wilson, Oat Mtn., Snow Peak and Jobs Peak, plus Santa Barbara. There are also links over to southern Nevada and Arizona ATV repeaters.

The ATN repeaters are dual mode supporting both analog and digital ATV. They all share a common set of input frequencies and modes. They are: 70cm band - 434 MHz AM-TV and 434 MHz DVB-T with 2 MHz BW. 13 cm band – 2441.5 MHz FM-TV. The network is still in transition. Not all repeater sites have DTV transmitters yet. All of the sites have output transmitters on the 23cm band on various frequencies. Some 23cm transmitters are still NTSC, VUSB analog, while others are DVB-T digital. Oat mtn has a 9cm FM-TV transmitter and Santiago Peak has a 5 cm FM-TV transmitter as well.

The current roster shows 33 members of ATN southern California. The officers are: President Nthan Haltman, AG6AV, Vice-President Tom Board, WB6HYH, Sec./Treas. Mike Collis, WA6SVT, W6ATN Repeater Trustee, Mike Collis, WA6STV, and Web Master, Don Hill, KE6BXT. ATN holds an annual winter meeting, typically in March. ATN holds weekly, on the air, ATV nets every Tueday night starting at 7:30 pm local Pacific time. Others can join the ATV nets via their Wereby.com internet connection https://whereby.com/atn1 The nets are also streamed from the Santiago Peak repeater to the BATC in the U.K. https://batc.org.uk/live/w6atn Below are a few photos of their Santiago Peak repeater site.

(note: most of this material about ATN was obtained from their web site: www.atn-tv.com)



The Mount Diablo Amateur Radio Club (MDARC) was founded in 1947. Today it has a membership of approximately 300 dedicated hams and is one of the largest amateur radio clubs in California. MDARC's purpose is to encourage innovation in amateur radio, provide public service and educational opportunities, foster goodwill within our community, and have fun in the process.

MDARC hosts a number of repeater systems, located on both peaks of Mt. Diablo, approximately 30 miles east of San Francisco, CA. Though only 3,849 feet at its highest peak, the mountain nonetheless boasts one of the largest 360-degree panoramic views in the Western United States, with some views approaching 200 miles on a clear day. This also translates into outstanding radio coverage. Their repeater systems include 2 meter, 220 MHz, 440 MHz, ATV, D-Star, and Packet/APRS; some with EchoLink and IRLP capability. The repeaters operate under the call sign, W6CX.

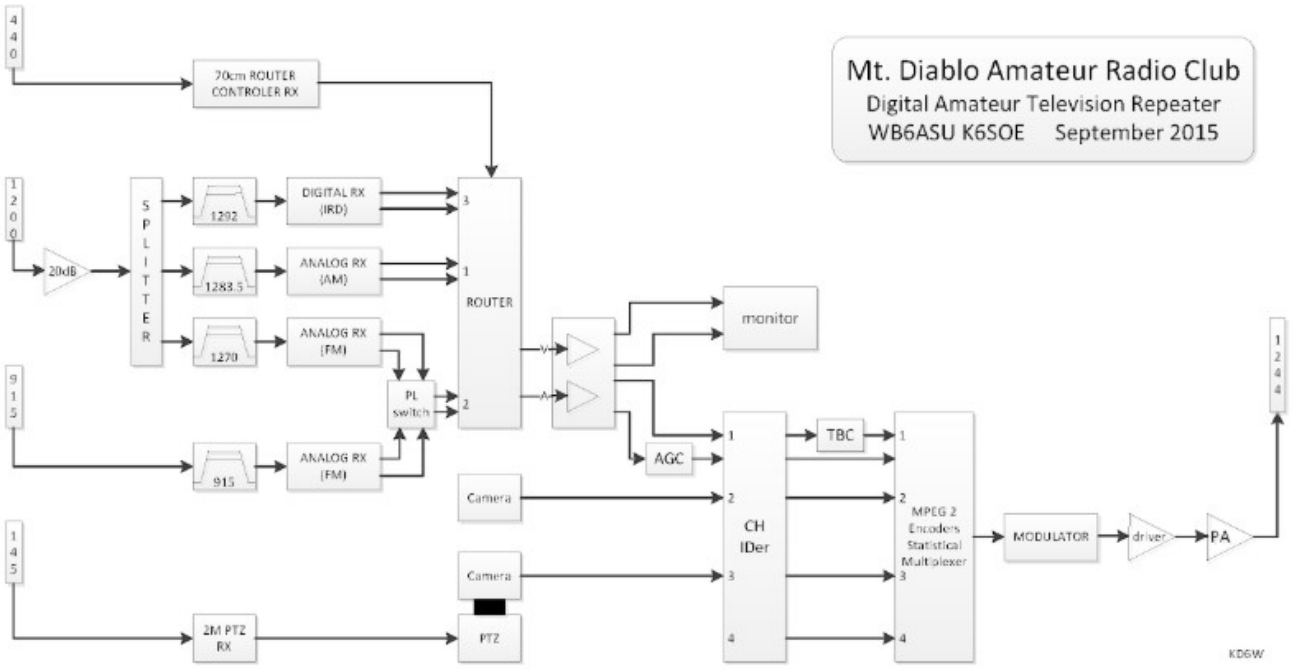
ATV Repeater: In mid-2015, MDARC converted the downlink transmitter of its ATV system to be fully digital. We are now able to transmit four channels of content in the same bandwidth that the old analog transmitter required. This also means that a digital receiver is needed to receive the MDARC ATV signal. Analog reception is no longer operational. Our uplink receiver can now handle both analog and digital, however. So if you are transmitting into our system in analog, your existing analog equipment will still work. For digital TV, MDARC uses DVB-S modulation.

The output frequency of the W6CX repeater is on the 23cm band at: 1244.5 MHz.
The repeater has four digital inputs on 70cm and 23cm bands at: 430 MHz, 915 MHz, 1273 MHz and 1292.5 MHz. The 1273 input handles either DVB-S or DVB-S2.
The repeater still also has one analog input at 1270 MHz for FM-TV.

The repeater's output is also streamed over the internet via: https://batc.org.uk/live/w6cxatv and also http://w6cxatv.mdarc.org

In addition to other club nets, they also hold a weekly ATV net on Thursday evenings at 20:00 local Pacific time. They use the club's 2 meter repeater on 147.060 MHz (+ 100Hz PL).

(note: the above MDARC material was obtained from qrz.com and also their web site at: https://www.mdarc.org/repeater-systems/atv)



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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