

Amateur Television Journal

November, 2024
2ed edition, issue #175

BATVC web site: www.kh6htv.com

ATN web site: www.atn-tv.com

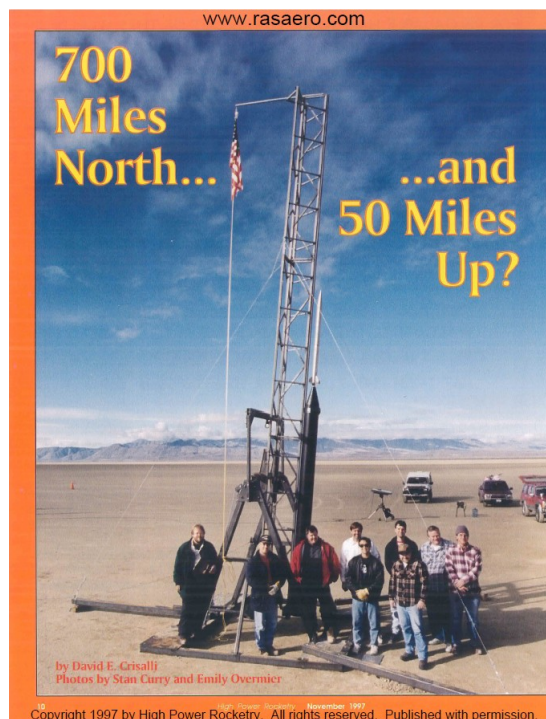


Jim Andrews, KH6HTV, editor - kh6htv@arri.net www.kh6htv.com

Ham TV from Space - Not ISS ! But Our Own Rockets !

As feed-back from our mentioning about the New Mexico ham's rocket project, we got this email from Mike Henkoski, KM7MH, Athol, Idaho ---

"Hello Jim --- It's good to see that effort continues in flying ATV payloads in amateur high power rockets. In the late 90's I was involved with similar efforts providing live video down links from rockets using amateur television (see attached). Those success were eventually leveraged into live video packages on the Tomahawk Cruise missile on frequencies near the 70 cm amateur band (see link). Also, the Tom Mueller in the rocketry article was later hired by Elon Musk as a founding member of SpaceX and VP of propulsion. "



The complete article Mike sent is a 19 page .pdf file. It is available for down-loading at www.rasaero.com

RRS 50 Statute Mile Boosted Dart Project: "700 Miles North and 50 Miles Up?", by David E. Crisalli, High Power Rocketry magazine, Vol. 12, No. 8, November 1997, pages 10-27.

The November 1997 High Power Rocketry magazine technical article on the Reaction Research Society (RRS), George Garboden, boosted dart project, where the dart reached an estimated apogee altitude of 50 statute miles. The booster was tracked on Doppler radar to a burnout velocity of 4432 ft/sec (Mach 4.2). Based on the booster burnout/dart release velocity measured with the Doppler radar, and using a pre-flight prediction for drag coefficient versus Mach number for the dart, the trajectory simulation predicted apogee altitude for the dart was 258,000 ft above ground level, or 262,000 ft (49.67 statute miles) above sea level. The dart carried a video camera which transmitted the video images to a ground station. Based on photographic interpretation of the video still frames the dart reached an estimated apogee altitude between 48.3 and 56.0 statute miles above ground level.



Mike Henkoski holds up the video package he put together on such short notice. The oval hole in the boat tail is the port through which the camera viewed the ground. At right, he is holding the fully assembled dart after a test fit of all components in the field.



To watch the complete YouTube video -- go to: <https://www.youtube.com/watch?v=WyeMyhKE5Yw>

DARKO & Hi-Des

Observing DATV development in the USA, I am particularly pleased that I have also contributed to this DATV development in the USA in connection with HiDes. We in Europe started with DVB-T much earlier (even if it has declined significantly in the last 5 years) , thanks to DATV modules from SR-Systems at the turn of the century. I have installed many of these modules in housings for another company, which were used as transmission systems for panoramic cameras in the mountains.



This is the very first DVB-T USB stick worldwide with bandwidth reception capability below 5MHz BW, came to me labeled like this.

Darko, OE7DBH

I have been able to gain a lot of experience with DVB-T, so it is clear that the idea of installing a MiniMod transmitter in our ATV repeater OE7XLT on 2212 meters asl elevation, which has been in existence since 1991, also occurred to me. In 2011 we finally got a DVB-T 70 cm repeater radio license for 2 MHz BW. Shortly afterwards there was a heated argument between local radio amateurs and me, so we ended our collaboration (*this situation is still ongoing*) , which was also a stroke of luck for the worldwide DVB-T community (*the saying goes: when one door closes, another opens*) .

My first thought was: If local radio amateurs don't want to be helped, how can I help ATV amateurs worldwide ?

My second thought was: There are DVB-T receivers, but where can I find receivers from series production that can also process 2 to 4 MHz BW and cost the same as consumer receivers 50~120 \$ (at that time SR-Systems receiver was 400 \$, DVB-S transmitter 1100 \$ and DVB-T transmitter 1600 \$)

After several contacts with manufacturers of DVB-T receivers here in Europe (TechniSat , Schweiger - which were ultimately unsuccessful) and many Skype meetings with managers of several factories in China who wanted to know a lot and in the end the only question was how many thousands of units are needed ? --- My answer was: Worldwide around 2000~4000 units, our ATV community is no larger, I got the answer: Oh, that's not enough for us, we need at least 10,000 units to start production.

Then, at some point, after so many disappointments, important information came: have a look at www.hides.com.tw

From this point on, new perspectives opened up for DVB-T, ATV radio amateurs and that was my first contact with **HiDes**. This very small company had just been founded (but worked together with **ITE** company) and had a single product in stock and only a few of them. The beginning of the collaboration with HiDes was relatively difficult (no trust on the part of HiDes yet) . I had to explain everything again: Which receiver with which features we needed, how many pieces were needed, etc. ... like with other manufacturers. In the end, HiDes decided to send me a piece to test and to

publish the test results in my OE7 forum with a request. This product was UT-100, before it was sent, it was reprogrammed to band width 2~4MHz according to my request and was given the name UT-100B.

As a result, month after month, new ideas and requests have come from both sides, new versions of USB sticks and also stand-alone devices that I wanted, such as receivers and transmitters, all of which have found a good market among ATV amateur radio operators in Europe. I have always published test results in the OE7forum and it was a very popular ATV DVB-T forum with over 1 million clicks. In the period from 2013.....2019, DVB-T devices such as the UT100 series , repeaters BR100 and BR101, UT120 and UT210, DC101 to DC105, down converter BD300, stand-alone devices HV100, HV200, HV310, HV320, HV110, & HV120.



Picture from first personal meeting 2016' with HiDes team and at ITE

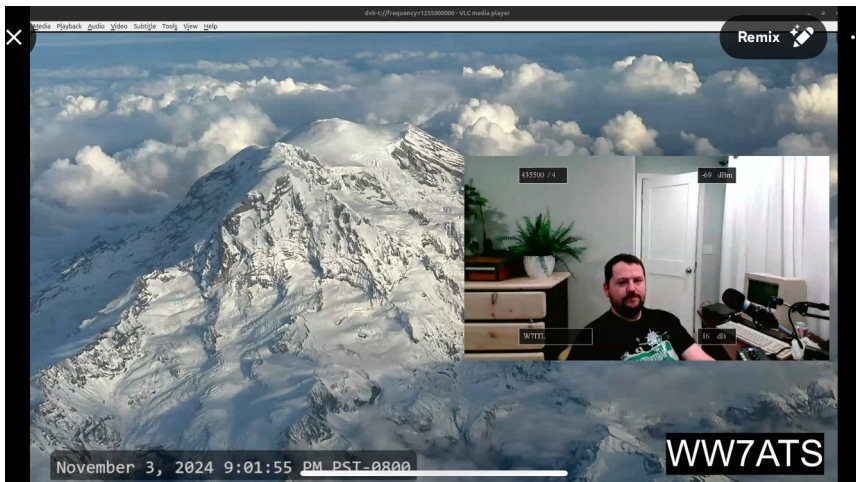
Later on my request BU500 UPconverter was produced for QO-100 use , as well as 3LNC70 down converter. New Ham Radio HiDes products are also 13cm band HPA2225 Amplifier and future 33dB, 2Watt, 10 GHz Amplifier. We also noticed good cooperation at our last meeting this year in Taiwan....



Summary: From a very heated local dispute (with long-standing poor results) , something good has emerged with great advantages for amateur TV radio operators worldwide.

Vy 73 de OE7DBH, Darko Banko, Pians, Austria
 email = 9a6rzn@gmail.com web = <https://oe7dbh.blogspot.com/>

Editor's Comment: We all owe Darko a very big THANK YOU for working with Hi-Des to create our modern day digital ATV.



Cheap RTL Dongle to Receive 23cm DVB-T

Wade Marshall, W7ITL

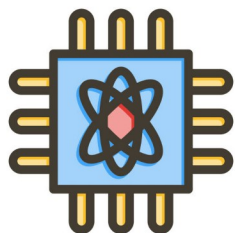
I was able to get the common and cheap RTL USB dongle RTL2832 to work with our Seattle Washington DATV repeater. Follow these steps if you want to test for yourself on the next net. I'm including confirmed working RTL dongles I found on Amazon below.

All instructions tested on Linux computer with Ubuntu 24.04, with kernel 6.8, these instructions should work for other flavors of Linux, but commands maybe slightly different. These instructions assume you already have Python and VLC installed

1. open a Linux shell
2. navigate to your home folder if not in it already
3. run `git clone https://github.com/argilo/sdr-examples.git`
4. `cd` to sdr-examples folder
5. `sudo python3 dvb-freq-fix.py`
6. Reboot
7. Open VLC > Media > Open Capture Device
8. Select TV - Digital from capture mode menu & DVB-T from Delivery system
9. In the Transponder/multiplex frequency field type: 1255000
10. Change Bandwidth to 6 MHz
11. Click Play

Known and tested working RTL dongles from Amazon: <https://a.co/d/acOHVNn>
<https://a.co/d/eCzyEDH> <https://a.co/d/ic21DUC>

Credit for the script that patches Linux goes to Clayton Smith - VE3IRR who collaborated with me to get his original script be made over 10 years ago to work with modern versions of Linux. Reference to his original article <https://irrational.net/2014/03/02/digital-atv/>



San Diego DVB Society

**San Diego - Seattle
--- ATV Link**

Mario, KD6ILO, reports that the San Diego DATV society now has a dedicated channel locally on their DVB/FSO Network now running the



RTMP feed from Seattle to their optical switch to rf converter for ATSC Ch. 15-1 [426.10]. He also reports that they are also broadcasting the Boulder, ATV nets from W0BTV on ATSC channel 16-1 (439.10 MHz).

OHIO ATV NEWS:

Guest Speaker on the November 6th, **ATCO/DARA/ATN** ATV Net, Zoom Session was Grant Taylor, VE3XTV, Toronto, Canada. Grant's talk was entitled

Narrowband ATV System for HF

In the past, Grant has designed a number of ATV projects such as an ATV modulator, a 23cm power amplifier, An FM ATV receiver, a universal down-converter, and other amateur radio related projects. Grant spoke about his development of a possible new ATV Mode for use on HF.



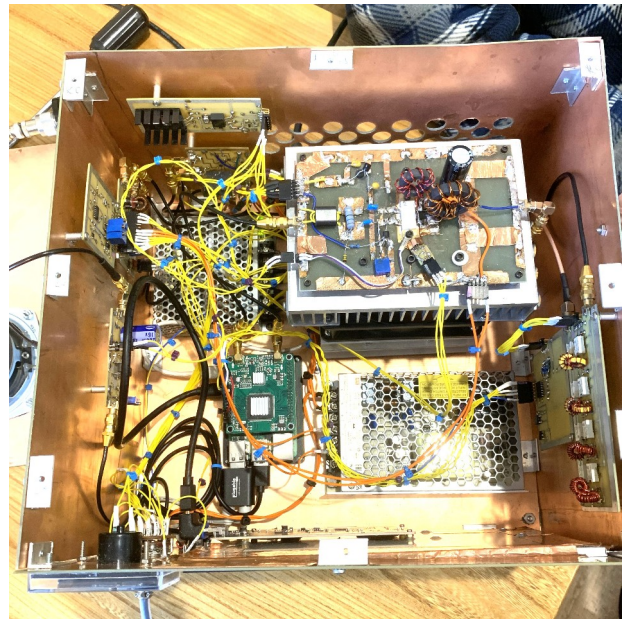
DARA Clubhouse & Antennas

SYNOPSIS: Grant, VE3XTV, North York, Ontario continues to work on an experimental NBTv, 90 line system, with full motion video for possible HF use (10 and 6 meters). Grant used to live in New Zealand and was very active there with ATV, and his callsign in New Zealand was ZL1WTT. He is now working on a possible new long distance form of ATV that would be usable via Sky-wave. In many ways, he is going back to the basics of television but taking a completely different/new approach, where the only part that will be digital will be employment of Digital Signal Processing (DSP), to process the video for the RF modulator and the demodulator stage, as this is a return to technology used with ATV, to get around the limitations with digital modulation. This is very much a hardware project. He is in the process of using this technology to maximize spectrum efficiency for possible future use on HF.

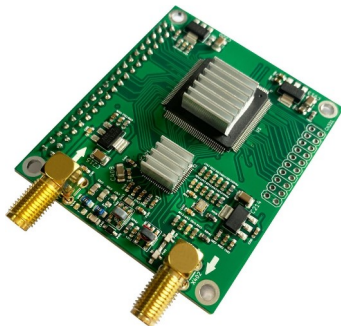
Editor's Note: For non-member ATV hams, if you would also like to participate in the future on this weekly ATV zoom net, send your request to Dave, AH2AR, for the sign-on info. *dpel (at) aaahawk.com*



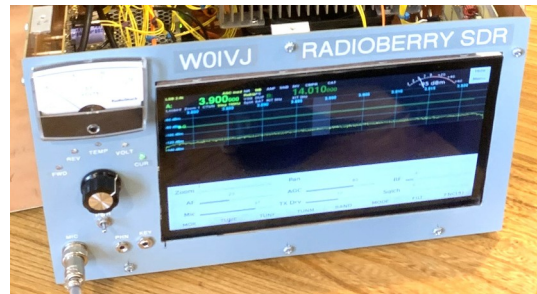
Tom, W0IVJ, & his new SDR HF Transceiver



interior view of Tom's rig



RadioBerry



Roll Your Own -- SDR HF Transceiver

Amazing what stuff is now available for DIY hams. Tom, W0IVJ, Boulder, Colorado recently brought his new home-built HF rig to the weekly Boulder Ham Breakfast for a great "show-n-tell"

The heart of Tom's new rig is a fantastic, powerful SDR radio transceiver called a RadioBerry. It is a top hat pc board designed to be attached to and controlled by a Raspberry microcomputer. It's radio specs. are 0 - 30 MHz using an Analog Devices AD9866 with a 12 bit ADC and one transmit and one receive channel. Max. rf power out is 20 mW. Simply Google "Radioberry" for a wealth of info and suppliers.

Tom's rig is complete with added RF linear amplifier for 15 Watts output, programmable low pass filter board, front panel touch screen display, power supplies, and a home built cabinet constructed from double sided pc board.



Tiny Estes Rockets to ---->



the Big Boys !

New Mexico Rocket Man & ATVer

We have recently written about the high altitude rocket project of some hams in Albuquerque, New Mexico. Here is a photo of one of the leaders of the project, Tony Lazzaro, KD5CRC. Tony is one of the officers in the Albuquerque Rocket Society. Check out their web site at: www.arsabq.org Their club's objectives are to work with both the young and old, of all skill levels for "an extremely rewarding combination of designing, building, launching, and recovering entry level to high power rockets." They have their own launch pad site in Rio Rancho, New Mexico.



Tony, KD5CRC

We are looking forward to publishing here in a future ATV Journal, their story about the development of a large, high altitude rocket which will carry an on board TV camera and 70cm DVB-T transmitter.

WOBTB 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/>

WOBTV 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

AA9XW ESTATE SALE:

Henry 3004 Amplifier: ATV special build 420-450 MHz, 50W in 2000W out, floor mount on wheels, \$2500, must pick up, cash only, original cost \$4000

(8) M-Squared Antennas: biggest usability 440 MHz, on ground, \$100 each, with Henry amp equaled 1.5 million Watts ERP !

155 feet 7/8 inch Heliac Coax: and harnesses, splitters, and also two mast mount WRN preamps n connectors,, all lowest noise figure possible none better, \$150 each

PC Electronics ATV Transceivers: 10 to 25 Watts 439, 900 & 1280 MHz

Two meter M-Squared Antennas: (4) biggest, 33 feet long, biggest highest gain of any. Was used with 600 Watt mirage amp for 350,000 W ERP

2m, Mast Mounted Preamp: full power relay, N connectors, lowest noise possible none before \$150

1280 MHz Mast Mounted Preamp: full power relay N connectors \$209

Pre amps for 2m and 450 are on folded over Rohn tower about 14 feet above ground
Get them before snow flies for added enjoyment!!!! Easier access.

Henry Ruh, AA9XW, email= a9xw@cs.com, phone= 219-741-9191 (only call between 5-7pm Chicago time, or leave message). Location is 5317 W. 133 St, Crown Point, Indiana.

Editor's Note: Henry is one of our real broadcast TV & ATV pioneers. He published A5-ATV Magazine 1975-82, ATVQ Magazine 1988-1997, plus articles in many other magazines, etc. Read his detailed bio on www.qrz.com