

Summer 2006

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AMATEUR TELEVISION QUARTERLY



ATV Camera Car Stars As Roving Scout
At Wheaton (IL) Field Day

Gordon West Kicks Off Field Day

North American ATV DX Report

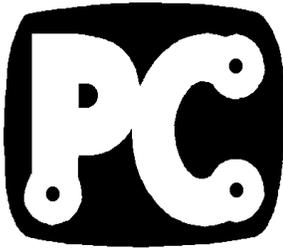
ATV Provides Live
TV For Hospital

QRM Reduction Using
CCTV Notch Filter

Dayton 2006
Recap

Antennas Go Up
For Gene, WB9MMM
& Shari, N9SH

Photo by Dan Hunt - KC9ATR



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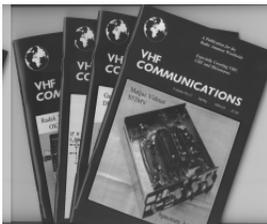
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Editors Notes

I would like to thank a great bunch of guys that showed up last Saturday morning to help get our tri-band antenna back in place and also install a new 22 element 440 yagi. Our Wilson SY-36 tri-band antenna decided to break after about 22 years in the air. The 2" boom broke about 6 feet back from one end and we took it down about 6 weeks ago.

My first reaction was to junk this one and buy new, until I checked what new would cost. That, and Shari said she liked the performance of the ole Wilson, and I have to admit it was good. I was lucky enough to find a bundle of random size aluminum tubing at a hamfest for \$10, and all the piece sizes we needed to do the repair were in that bundle! I spent quite a bit more than that to get nuts and bolts and I replaced all down the center of the beam.

The beam weighs 53 pounds and has 29 foot boom with a 29 1/2 foot reflector. I was worried that we would get it all up in one piece. But, with good help and working slow and careful, all went well.

The picture shows John, KA9SOG, assisting me on the tower. You can barely see it, but we used a "platform" to stand on at the top that John made out of a deer stand. We were still very careful and always strapped in!

Those helping Shari & I that day were: Chuck, AB9KA; Eric, N9MCS; Paul, K9RNR; Rich, K9PK; Dan, KC9ATR; Jimmy, KC9GOL; Herb, K9AMJ; and John KA9SOG. Thanks to all!



So far on ATV, I have worked one DX, AI, KV8X, in Muskegon, MI, a distance of 155.9 miles. Never could have done it with my previous antenna. Until next time - 73,

Gene - WB9MMM - ATVQ

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North American ATV DX Report

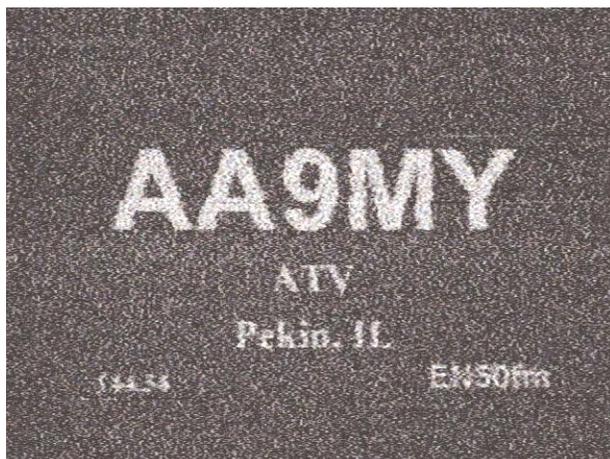
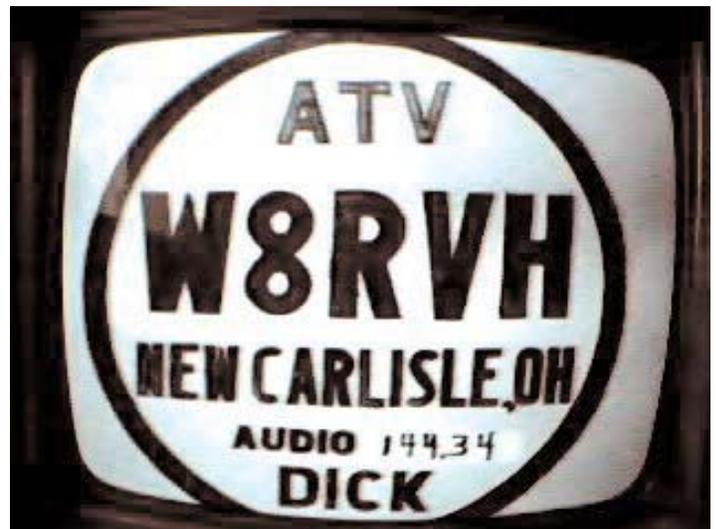
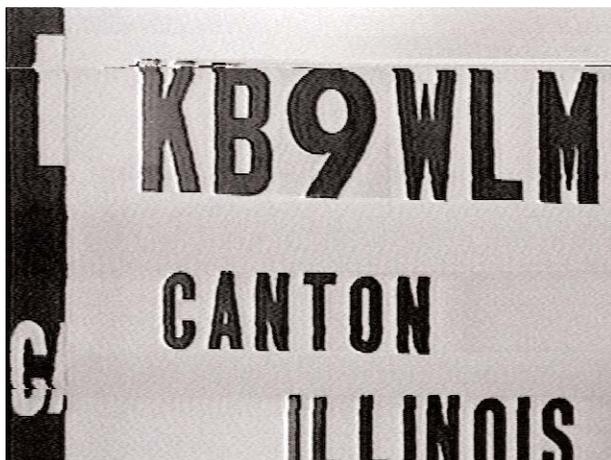
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Mt. Vernon, IL 62864
DX Hotline 618-242-7063



The summer DX season has begun but so far nobody has reported any real long haul tropospheric openings. However as this goes to press there has been talk of an assault on the Hawaii / West coast duct by Paul,

KH6HME, and Gordon West, WB6NOA. The legendary duct has been open this June but no reports have been received of it supporting video at this time. Maybe this year a real 2-way ATV contact will be made over that great distance. That being said there have been many reports of temp inversion DX that has been providing very good signals out to 200 miles or further. The first part of the month provided many strong signals from the Peoria, IL, area to Southern Illinois with AA9MY from Pekin, IL, and KB9WLM of Canton, IL, running P-4 to P-5 signals at around 160 miles.

The inversion DX also was exploited by ATV op's in OH, KY, and IN with W8ZCF in Cincinnati, OH, working K4VXP in Campbellsville, KY, W4HTB and K4NQV of Bowling Green, KY, and W9NTP and K9KLM of Indiana with strong signals on many mornings. W8ZCF and K4VXP were kind enough to share these photos taken July 1st. The first two taken by W8ZCF with W8RVH P-5 at 65 miles and K4VXP P-4 at 130 miles.



K4VXP sent along one of yours truly KA9UVY pushing P-4 at 179 miles and one of W8ZCF P-4 at 130 miles.



The DXers in up state OH, WU8O and W8ILC, caught a nice inversion opening over Field Day weekend. Tom, WU8O reported hitting the Dayton repeater with a P-3 at 47 miles with as little as 700 mw of power. They also worked a field day station NO8I running only 10 watts with an antenna at 15 feet. NO8I was P-3 at 45 miles to WU8O.

NR8TV from South Central Ohio was on the following morning and managed to see Bryan, KC8LMI, from Michigan P-2 and worked KB8CRM in the Detroit area of MI with P-1 at over 200 miles!

KC8LMI and KB8CRM were also seen on the morning of June 25th by W8ILC in Dayton, OH, but I am not sure that Ron was able to get a 2-way with them.

KC8LMI also works the microwave ATV bands and reported seeing the Flint, MI, ATV repeater output on 1253 at P-2 a dis-

tance of 60 miles on the morning of the 28th and P-5 on the 29th of June.

Out in the Plains states things have been off to a slow start but KC0HFL of Wichita, KS, saw the Ponca City, OK, ATV repeater with weather maps up to P-3 on the morning of June 28th and has been working with Rick, K9KK, of Norman, OK.

Rick reported making improvements on his station including new feedlines and antenna maintenance completed in early June. Rick is now ready to run and should make a fine target for anyone in the Midwest when the Tropo really heats up in July and August.

Have you made improvements in your station this year? Please drop me a line if you have or if you have added any other ATV bands to enhance your DX experience. Send along a photo if you can. The photo below is of my new 125 foot tower, the last sections were raised the week of Hamvention.



No the camera isn't playing tricks on your eyes my tower is made of 3 Rohn 25's clamped together in a 2 foot triangle for strength. As this goes to press this is home to 4 stacked DSFO-25ATV's and eventually 55 el on 1.2, 33 el on 900 and a 13b2 for talkback.

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The ATVQ DX contest is in full swing and I hope you all take time to send in a log this year. The weather has been strange and Tropo is scarce but the temperature inversions from all of the thunderstorms have allowed many good contacts this first month. I am sure that the summer months hold many ducting chances. Whenever there is a hurricane spinning it's way up the East coast the band will open, it always does. Any one in New England should be on the look out for conditions to the Carolinas or even Florida when a Hurricane is coming. Try to get a few DX contacts in before the tower or antennas get wiped out, it may give you the encouragement you will need to put your station back on the air if things get wrecked.

Tech Tip:

While setting up my 4 bay array of FO-25's I discovered a problem with one of my antennas. The SWR would fluctuate between a perfect 1.0 to a 2.4 to 1!

Try as I might I could not find a bad solder joint anywhere on the driven element assembly or any connector problems but every time you would flex the driven element with a plastic tool the swr would shoot up or go down to 1 to 1.

After much head scratching and some cursing I admit, the problem was found. The boom of the antenna still had aluminum shavings inside from when the manufacturer drilled the element holes. It looked like aluminum cob webs still attached to sever-

Hey Gene, Wish You Were On This Morning! July 07, 2006

Gene, The picture was P-2 but the capture doesn't do it justice! What do you think? I'm EM58ng not sure of the Repeaters Grid to get distance but I might be your furthest Viewer yet?

73, Bob - KA9UVY-TV

Hi Bob,

Wow, I guess your antennas are working well! Are you using a pre-amp at all? My grid is EN52lg, and we are about 1/2 mile from the repeater site.

I hope to get one of the two 22 element yagis up this weekend. First we have to get the tri-band (Wilson SY-36) up. I have a crew of people coming tomorrow morning to help get the 53 pounds and 29 foot square antenna up. Then I can put the 440 ATV antenna up above. I will have to work on a harness for the two and mounting hardware, and knowing that I have an issue of ATVQ to get out, it will be a few weeks at least before I get to that. So, one good yagi for now.

Thanks for the nice picture. I will share with the local group - and ATVQ readers, of course.

Gene - WB9MMM

Gene, all of the trouble appears to have been worth it! I have been seeing KY and OH most morning and the band has not been all that great. My locals (within 50 miles) all seem to be a p-unit to 1.5 units better

al element holes extending into the center of the boom. Since all K1FO style yagis use insulated elements from the boom this can cause major problems with pattern and or swr if some of this debris comes into contact with an element inside the boom. Remember to run a barrel brush down your boom to clean it out before you assemble one of these antennas or at least take a good look inside before you start snapping in the insulators to verify that all is clean. It could save you some real aggravation down the road.

(Note) Out of 4 antennas assembled here only one section of one antenna had this problem but I would recommend you inspect all boom sections before assembly, *inside* and *out*!

Important DX Info:

The new ATV DX Record page at P. C. Electronics:

<http://www.hamtv.com/atvdxrecord.html>

If you have done better, be sure and send your information to Tom at P. C. Electronics. Let's hope we see those records grow this summer!

The Hepburn tropo forecast page has moved again!

<http://www.dxfocentre.com/tropo.html>

If you are online you can post ATV CQ's and reports to the New ATV Logger page:

<http://dxworld.com/atvlog.html>

ATVQ

than before. Best of all I have made 2 attempts with Bryan, KC8LMI, since the antennas went up and both attempts have been around 7:00pm. We have seen each other barely P-1 both ways, both times!!

That's 373 miles under dead band conditions (simply amazing) We had tried for 2 years several times and never seen video before (even in the mornings). My swr is 1 to 1 on 439.250, 434, 432.100 ssb but almost 2:1 on 427.250 and 421.250 but has a dip on 426.250 at 1.2 to 1. I am pleased with the changes in the antennas and glad Dave at Directive Systems was willing to work with me.

Get that antenna up and we can get our first 2-way in the logbook! P.S. The distance comes to 276 miles!!!

73, Bob - KA9UVY-TV

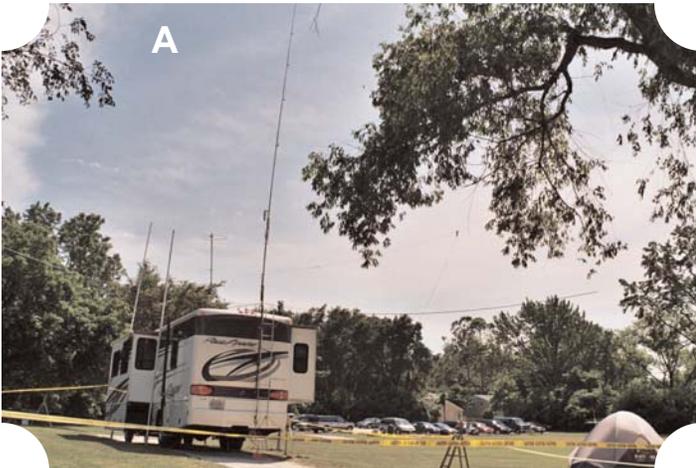
ATVQ



ATV Camera Car Stars As Roving Scout At Wheaton (IL) Club Field Day Event

By Jim Ward - W9DHX Email: jrobbward@wowway.com

893 Saddlewood Dr.
Glen Ellyn, IL 60137



There's an old line about "the way to tell the difference between men and boys is in the price (and size) of their toys". Peter Richey, N9HDW, immediate past president of the Wheaton (IL) Community Radio Amateurs, goes for extremes; his largest toy is a 36' Pace-Arrow motor home (See A) and the smallest is a 24" remote control model Escalade SUV with remote camera gear on the roof (See B).

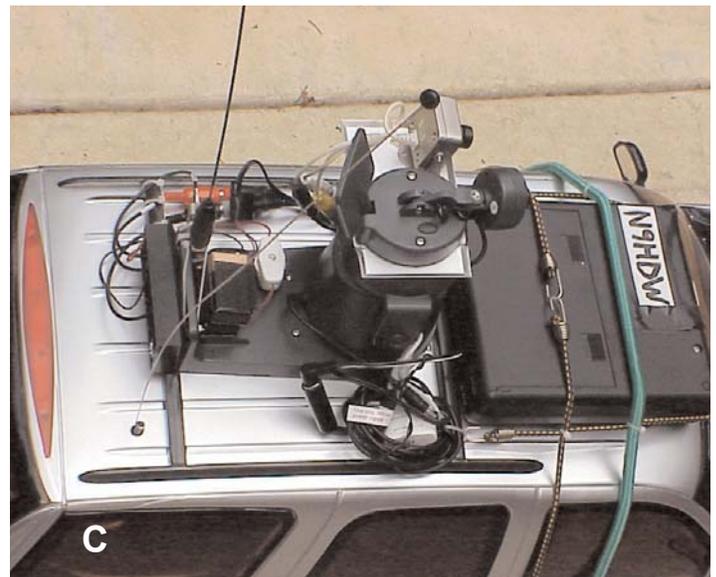


And how to use both for 2006 Field Day? As the antennas would indicate, the Pace-Arrow would be home to three stations, and the camera car would provide an "on site" visual report of what's going on at the other four stations in the "7Alpha" Field Day competition from Panfish Park in Glen Ellyn, IL .

Peter had seen the mini-camera and car combination before, but on a small car and fixed camera. So when he saw the Escalade, the idea light bulb turned on! That would be big enough to put a tilting camera in place to really scan the Field Day scene.

Not satisfied with a single camera, Peter ordered dual camera

and transmitter systems-X-10 (2.4 GHz unlicensed) and ATV (70 cm AM channel selectable, CATV channels 58, 59, 60, plus 427 MHz). Each one provides video and monaural audio. A remote controlled (49 MHz) power rotating camera mount pans and tilts both cameras through 180 degrees horizontally, and 60 degrees vertically, using the hand controller. (See C)



The Escalade is an excellent copy of the original and is controlled on 27 or 49 MHz. All the video gear fits on the car's luggage rack. It runs in three speeds forward and three reverse. It has a horn, directional blinkers, brake lights and headlights, and runs on 12 VDC rechargeable.

Field Day arrived and the coordination with the ATV Demonstration provided a test of the Camera Car's effectiveness. With the Demo's receiver screen set on Channel 60, Peter's call sign ID (painted on the car's roof top) showed brightly on the screen. (See D)





E

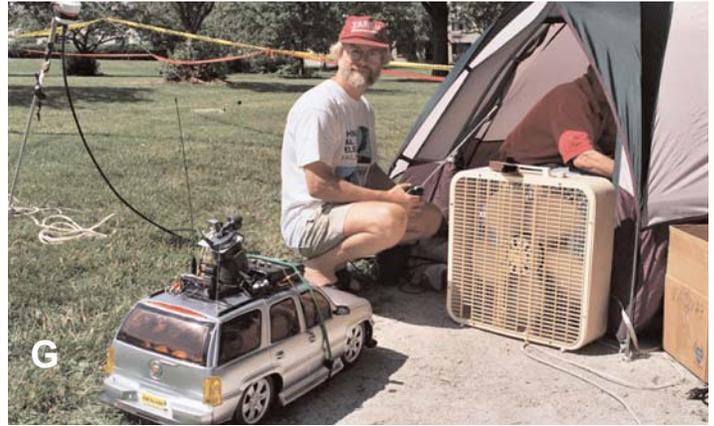
Naturally, you have to show someone else how to drive the car. Here Peter shows George, KA3HSW, how to handle the controls. (See E) The Club's regular FD scorekeeper, John, WA9MWF, is interested in Peter's car, and has the score record in hand. (See F).



F

The Car's first visit to a FD station finds a pup tent with a big fan. (See G) Down the road, another 250 feet, at another station site, the Channel 60 signal came back rating a healthy P-3 signal report. (See H) After all this scouting, the Escalade needed some help back home (See I) and FD Chairman Dale, NJ9E, gets a chuckle over the armful of a tired SUV.

"Rest and Recharge" in the Motorhome's bedroom (See J), with the Car's controller in the foreground and the support kit at the right. Those RC cars have the same problems as the big ones—they have to stop at service stations. The 110 wall socket was a lot cheaper than filling the Pace Arrow's tank.



G

Another great adventure for the WCRA Club and ATV enthusiasts! The last RC/ATV combination was recorded in 2001 on local Public Service Television ("Wild Chicago"). This time we'll be honored to have coverage in ATV Quarterly!

ATVQ



H



I



J

Gordon West Kicks Off Field Day In Southern California

By Don Hill - KE6BXT
President ATN-CA
Email: donhill@gmail.com
27171 Regio
Mission Viejo, CA 92692



Dayton Hamvention's Amateur of the Year: Gordon West (K6NOA), visited twelve Field Day sites over the two day event (June 24-25, 2006). His first stop was at James G. Gilleran Park in Mission Viejo, CA where SOARA (South Orange Amateur Radio Association) had set up for Field Day 2006.

Within five minutes of the start of Field Day, Gordon made the "SOARA is ready" call to Eagle. Eagle is the callsign for the Costa Mesa police helicopter which is equipped with an Amateur Television transmitter and the capable of sending FLIR (Forward Looking Infra Red) as well as normal video. A screen overlay shows the pointing angle of the camera relative to the aircraft's heading. The helicopter circled the Field Day site, sending P5 video to the SOARA ATV receive station before being call away to provide support for a fire in the local area.

After Gordon left, the SOARA Field Day site was visited by Mission Viejo City Council Member Gail Reavis, an avid supporter for public safety. She stopped by the ATV booth where she saw a demonstration of a portable hardhat cam and she talked with RACES and ARES members about the city's role in supporting volunteer organizations, like RACES and ARES, by providing facilities and equipment and not relying on volunteers to provide all the equipment that they would need to operate in the event of an emergency.



Hardhat Cam



Mission Viejo RACES (KE6SWE)



Council Member Gail Reavis

SOARA completed several simplex contacts with the Mission Viejo RACES (KE6SWE) station set up for Field Day at the Mission Viejo city hall. They demonstrated both receiving ATV from KE6SWE and sending ATV to them.



Dave Couch (KA6DPS) in Nuevo, CA had a QSO with Norman Hill (KD6OMV) in Ontario, CA by way of the Amateur Television Network's Repeater on Santiago Peak.



Bryon Foster (N6IFU) conducted Field Day operations at the Ronald Reagan Library in Simi Valley, CA.

On day two SOARA tried ATV-Lite. The receive station consisted of a hand held ICOM IC-R3. The transmitter station was a 3watt, 2.4GHz, mast-mounted transmitter into a raydomed yagi antenna. The on/off/push-to-look switch was accomplished by plugging in the cig-adaptor plug. SOARA managed only one QSO on day two and that was with Norman Hill, KD6OMV, through the Santiago repeater.



For additional pictures (and videos) of SOARA's Field Day activities, visit their web site at <http://www.soara.org>.

For additional information about Amateur Television in Southern California, visit the Amateur Television Network web-site at: <http://atn-tv.org>



Two-Tone Generator With 500 Hz and 1000 HZ

By Guenter Sattler, DJ4LB

Translations: Klaus Kramer, DL4KCK Email: DL4KCK@t-online.de

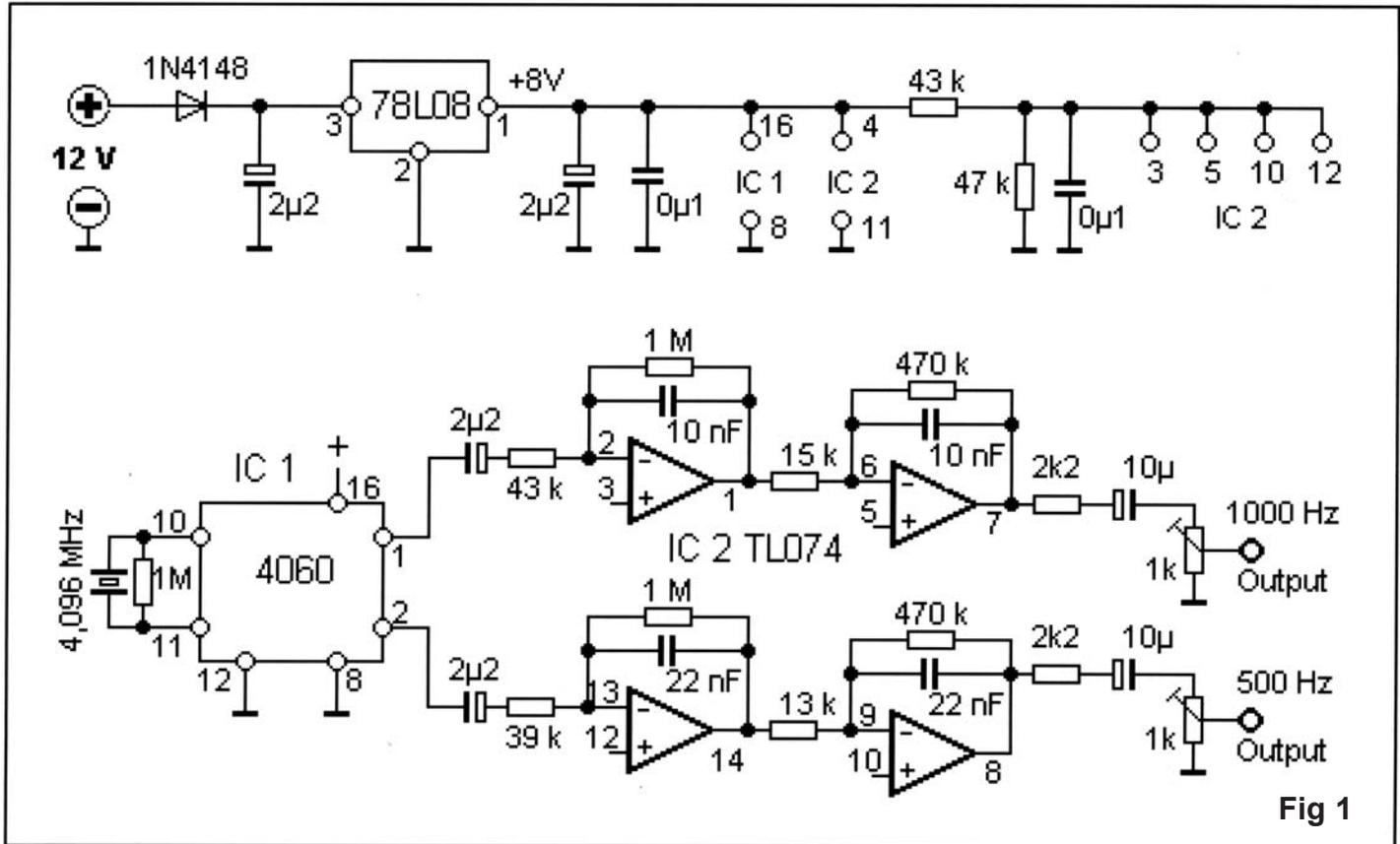


Fig 1

Sound synthesizers are used for setting the sound of repeaters or links and for identification of different sound channels. As our new digital ATV transmitters have the standard possibility of two sound channels, the following circuit is designed for two different audio frequencies. 500 and 1000 Hz are derived from one crystal and give a harmonic sound when heard in stereo mode. Another 250 Hz signal available at the crystal generator is not used, as it could be misinterpreted for a 50 Hz mains harmonic.

The circuit diagram (Fig 1) details all components including the power rail for the IC's. The CMOS-Chip 4060 contains all active parts of crystal generator and binary counter which divides the clock frequency in 14 steps down to 1000 Hz (2 exponent 12) and 500 Hz (2 exponent 13) as a rectangle signal. In order to get a sinusoidal waveform there are two integrators cascaded in line using the OpAmp TL074.

As shown in "Fig 2" the rectangular wave is first integrated to a triangle signal and thereafter to a sinusoidal waveform. In fact this is a parabolic wave with a harmonic distortion of 4.1 per-

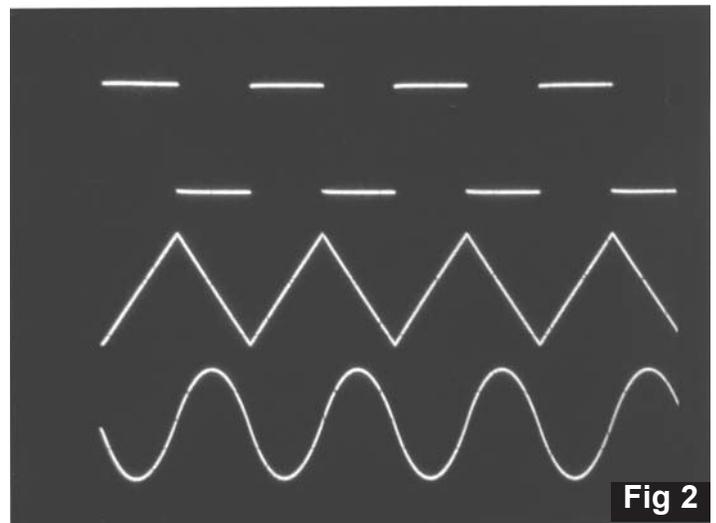
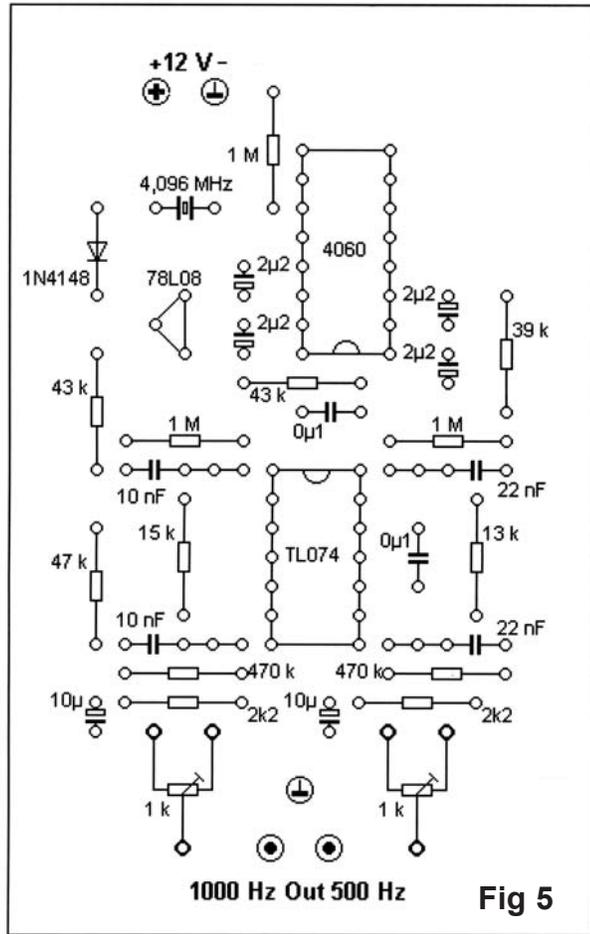


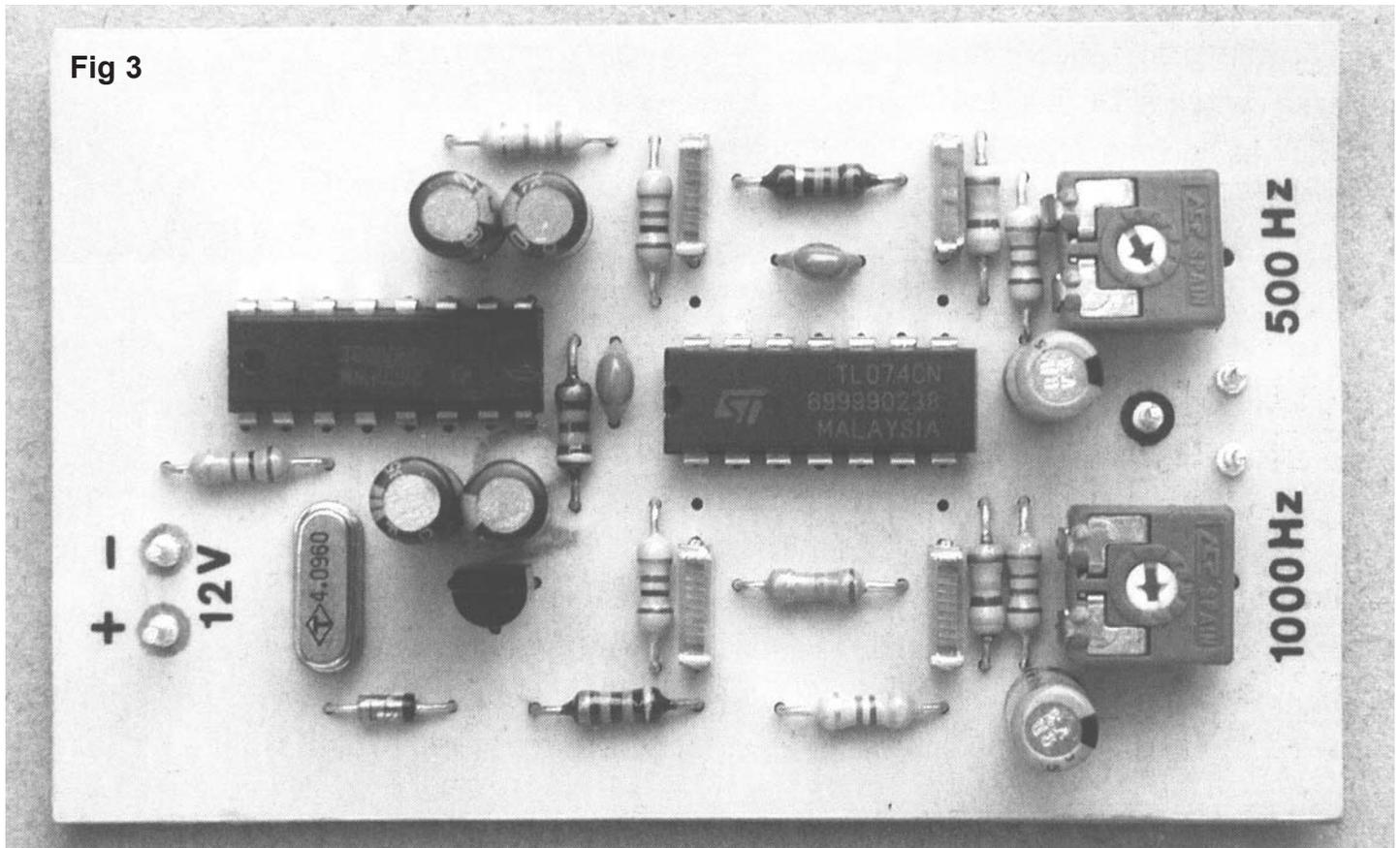
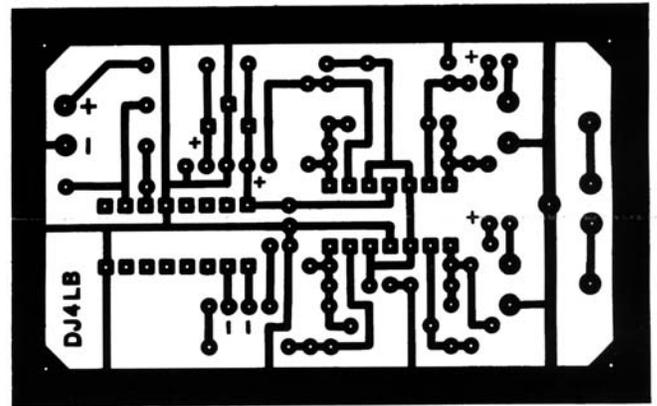
Fig 2

cent, but as we are speaking of "timbre" with musical instruments and do not call it "distortion", one might take this approach in our case too.



At the outputs there are audio levels of up to 1 V pp without a DC component. If needed you can also take the full 4 V from the second OpAmp's output.

"Fig 3" shows the sound synthesizer on a prototype printed circuit board, layout (50x80 mm board) "Fig 4" and graphical parts list "Fig 5".



A “Final” Update On DBARA’s 70 cm ATV Repeater System

By Bob Stone - W3EFG - Email via: www.QRZ.com
63 Fairway Circle
New Smyrna Beach, FL 32168

REFERENCE:

Bob Stone’s, W3EFG’s, most recent ATVQ publication is now available on the DBARA web site. www.dbara.org/atv the title of the 6-page article is: “The World’s First Single Vertical Antenna, 70 cm. In Band ATV Repeater System” published in the Fall 2005 edition of ATV Quarterly Magazine. It can be viewed by clicking on the above “ATVQ publication” in blue at the DBARA web site, and waiting a few seconds until the copyrighted pdf file (supplied by Gene Harlan, publisher of the ATVQ magazine) comes up automatically

PROGRESS:

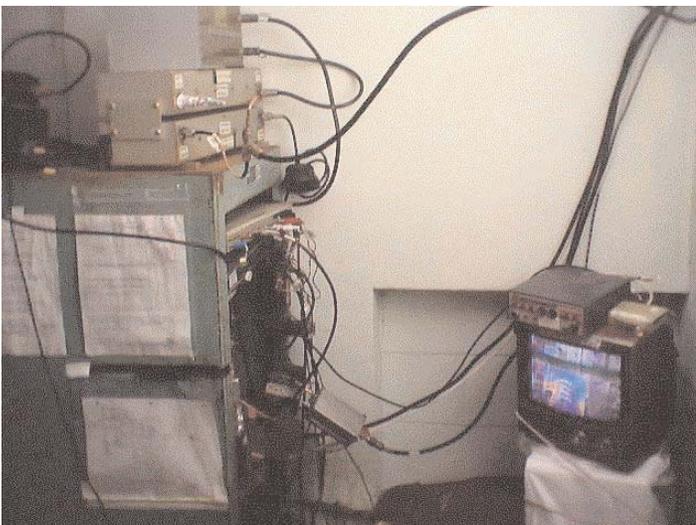
Over the last several weeks I have discovered, working with N4URS at his QTH, and have and hopefully corrected (with his help), some problems which affected our desense situation at Maley, in the presence of QRM. This QRM actually adds to the desense (if any at the time) and completely makes the Maley one-site, one-vertical antenna system to NOT repeat our 434 input ATV signals. Inserted below are three photos of the “final” (to date, Hi!) configuration at the Maley transmit site. You can see my picture on the TV set as received from my station in New Smyrna Beach via the entire 434 receive system link at Maley. Note the absence of desense or QRM (at least at the time when these pictures were taken).



CHANGES AND FIXES AT MALEY:

Some of these revisions and/or “fixes” include:

1. Re-built and wrapped in plastic tape the old TV yoke with JB weld (it shattered when I dropped it) and I then looped the RG 59 coax through this yoke 3 times that connects from the 434 duplexer output to the CCTV filter string and to the 434 preamp and then the 434 crystal controlled converter. This helps reduce any RF on the outside shield of this receive-link coax. Previously, we had deleted two adapters in this cable run and changed this cable. We still have the smaller old TV yoke at the wall area where the 9913 coax from the antenna enters the building. These are shown in the attached photos.



2. Re-soldered the inner coax pin of the type N connector from the main vertical antenna's coax that connects to the duplexer's type N "Tee". It was poorly soldered and just came off when I pulled on it. I actually got the local elevator repair man, a non-ham, to help me with this repair, NOT a one man job, Hi!

3. On this connector, on 3/15/06, I was moving and pulling on this coax (looking at the desense) when the connector "inners" just come out in my hand. There were only a few shield strands soldered to the ring in this connector. (I always solder the shield to this connector ring on type N connectors!) I "fixed" it by trimming back about 1/4" of the outer coax shield's plastic cover, wrapping some aluminum fold around this area and re-inserting the "inners" back into the connector, spraying TV tuner inside the connector again, and REALLY tightened the screw-in part of the connector with a wrench and pliers.

4. Setup all of the video levels, both from Beville and locally generated from Maley, to match each other more closely and with the proper 30% sync level of the 1 volt peak-to-peak video level. This has been a very difficult procedure, even with 'scopes at both Beville and Maley, while working alone and with only a few ATVer's available for tests and talk-in setup help. (Usually I would trial-and-error setup these levels and check back home with my 'scope how the levels and video pictures compared from the ATV repeater, as seen at my QTH.)

5. Reduced the RF output from the ATV Exciter about 0.5 db (from approximately 50 watts peak to perhaps 30-40 watts peak) from the exciter to the new DCI 421.25 MHz \$400 bandpass filter that feeds the Mirage power amplifier. This slightly reduced the system radiated output power from the repeater, but this doesn't appear to reduce the signal visually as received at my QTH in New Smyrna Beach some 15 miles south. This allows the transmitted video level to be increased at Maley (very critical) to about the same as the video level of the 434 signal via the Beville receive site. This shows how CLOSE we are in our signal isolation necessary to avoid desense with our overall some 140 db isolation (or so) between 421.25 MHz and 434 MHz!

We really don't have equipment to measure this isolation, but it is VERY critical to maximize this isolation by filters and by ALL available means and much experimentation, as we have found out the hard way!

CONCLUSIONS:

All of these "repairs" or changes appears to significantly reduce the RF that leaks back from the transmit signal channel into the receive signal channel (Remember, they are only 13 MHz apart and share a single vertical 10 db gain collinear antenna! Yes, each NTSC signal is over 6 MHz wide and is only 13 MHz apart in frequency! Impossible to work you say, this can never work? But, we did it in our DBARA ATV repeater after over 2 - 3 years of effort with largely a combination of commercial plus home brew gear! We believe the world's first, with a high gain vertical antenna!

Hopefully these changes have "fixed", or at least greatly reduced, the desense problem! Hopefully this will be a "long-term" solution. But remember, we are still experiencing some BAD QRM or interference now also at Maley (as well as at Beville) around 433 MHz that wipes us out at times for some periods of time.

I hope we can get some more Fox Hunting help from Larry, N4URS, and Jeff, KG4DHz, to continue to try to locate and eliminate this QRM around 433 MHz in the Daytona Beach, FL area! We sure need their help!

We will appreciate any feedback on these articles and information about any experiments you, or other ATV'ers, may share with us. Have you, or others, ever attempted to build, a one-site, single-antenna 70 cm ATV repeater system? Please e-mail me with details, if you will, thanks! Bob Stone, W3EFG. Check me out, if you wish to, on www.qrz.com/w3efg

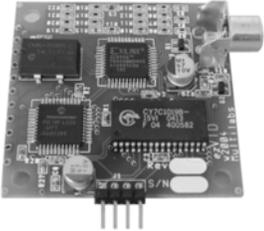
ATVQ

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Improved QRM Reduction For 433 MHz Using Channel 3 CCTV Notch Filter

By Bob Stone - W3EFG - Email via: www.QRZ.com
63 Fairway Circle
New Smyrna Beach, FL 32168

BACKGROUND OF ATV 70 CM QRM INTERFERENCE SOURCES:

I believe the information in this article will be of great interest to ATV'ers, especially those using 434 MHz as their ATV input channel and who are having QRM problems from the many wireless thermometers, weather stations, and a number of other commercial services that are creating QRM or interference in the 433 MHz region and above in our 70 cm ATV band. The latter worse interference is created by spurious intermod signals actually generated within their power amplifiers (PAs) of commercial stations in the 450 MHz band from high power cell phone terminals in the 890 MHz band "beating" (heterodyned) with their fundamental output frequency!

Here is an example of this interference at our Beville receive site back in 1998 and how we found and were able to eliminate it. We had help from the ham who setup the station and convinced the commercial site to put in a low pass filter that solved our problem. There are other QRM'ers out there, who are allegedly operating within the FCC standards, may be messing up our 70 cm ATV operation, aren't aware of it, and really have no incentive to delete spurious intermod signals. They will continue to bother us unless the ATV'er can find and prove that their QRM is causing ATV problems, and if the FCC will direct them to fix their station! Unlikely, huh?

Our analysis showed that a nearby cell phone tower's nominal 890 MHz signal was beating with the nominal 452 MHz Port Orange (PO) Water and Sewer facility's transmitter signal to produce a difference intermod signal in the PO amplifier around 438 MHz. This intermod signal, of course, is in the video passband of our 434-440 MHz ATV input signal. The observed ATV QRM was a "Packet-like" random pulsating signal which changed the white level, affected the color and the audio sub carrier. The degree of QRM (interference) was a function of our 434 MHz ATV signal level into our Beville repeater receive site. With the help of a ham Don Schultz, K2CZT, who built the PO system years ago, he was able to convince PO to buy a low pass filter and to install in at the output of their 452 MHz PA. What a break, huh, to have this luck? This totally eliminated our QRM!

If you do the math, our current QRM (perhaps many miles away, since it's only seen and heard at our nominal 150 ft. antenna heights and not at ground level), is "likely" due to commercial stations in the 457 MHz region. Note that $890 \text{ MHz} - 433 \text{ MHz} (+/-) = 457 \text{ MHz} (+/-)$. It is suggested that our

DBARA Fox Hunters search this frequency area. This frequency region is a good one to monitor and attempt to correlate the QRM seen and heard on ATV with these prime frequencies. A good spectrum analyzer, that can view and switch between these two regions, would be very useful. Obviously one must be quite close to these stations, likely miles away from Daytona Beach, to detect these spurious intermod signals!!

Most of the searches to date have been quite local and at ground level from a car, except from a wireless weather station in a boat at the marina across from Maley. Really, other than this case, no sources of this QRM that can be matched to our interference have ever been found. Searches using a private aircraft from our pilot ATV'ers have been suggested, but not yet tried, to locate the QRM source area(s).

ABSTRACT AND SUMMARY:

An initial article was published in DBARA's ATV section on a "cheap" CCTV notch filter report tuned to 434 MHz (our ATV input frequency) with a nominal 10 dB notch at approx. 433 MHz. Two filters were bought and tested. They reduced "some-what" the QRM interference at our Beville receive site, but not nearly enough!

Tracy Warren at C&E in Syracuse, NY, (where I used to work at GE in the '60s) was called and he designed, built, and delivered two tunable filters for 61.25 offset tuned (Ch. 3) for about \$20 plus S&H.

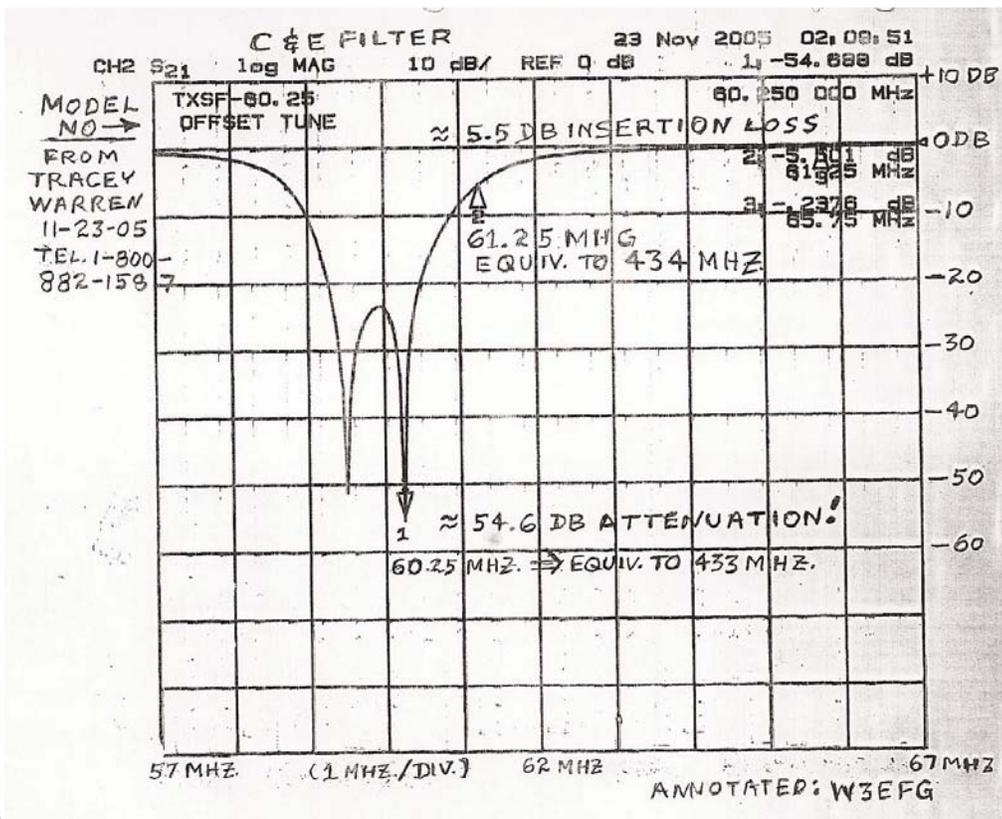
Initially, in a long phone conversation with Tracy, he came up with his idea for a standard CCTV notch filter that was modified with holes in the filter sleeve that accessed four tuning slugs in the coils of a L-C filter. The challenge was to design a filter that can provide "some" attenuation in the 433 region and still allow the ATV video to pass the video carrier at 434 (with modest attenuation) and little attenuation up to the end of the 440 MHz passband. Two of these 433 MHz CCTV notch filters were purchased and tried but they didn't really work well, not enough attenuation, only about -10 dB at about 433.

BACKGROUND:

This CCTV filter company, C&E, was later called. By the way, C&E was where we bought the CCTV pass band filters on 421.25 MHz that we are using in our one-vertical-antenna, one-site ATV Maley site. These are critical filters that allow us to

make the system work! I asked the chief engineer, Tracy Warren, (1-800-882-1587) if they had any "cheap" CCTV notch filters that "may" help us (and other ATV repeater's using 434 as the input channel) eliminate, or at least reduce, the QRM interference around 433 MHz +/- about 200 kHz.).

Reading these poor results above I sent him the 433 MHz notch filters. Tom O'Hara of P.C. Electronics suggested a clever idea to improve the QRM attenuation of these CCTV filters. He suggested that C&E makes a tunable CCTV notch filter at TV channel 3, our output from our 434 ATV converter to our cable demodulator to give video and audio for re-transmission. Tom pointed out this will make the CCTV notch filter more effective, since the "Q" of the L-C filter network will be about 7 times higher (and its' selectivity sharper) at the lower frequency. This should reduce the notch bandwidth and give us perhaps a 30 dB or more notch.



C&E TXSF 60.25 Offset Notch Filter For ATV 433 MHz QRM

I called the chief engineer, Tracy Warren, at C&E again to challenge his creativity! He was able to come up with such a receive only design (that won't handle power) for about \$20. I bought two filters for tests at both Beville and Maley. Results at Beville were outstanding! We actually got about a -55 dB notch at 60.25 MHz (equivalent to 433 MHz). Compare this with the nominal -10 dB notch at about 433 MHz with the initial design filter!! Also, there should be a lower insertion loss (and it was, actually only -5.5 dB, not -10 dB or so) at the video carrier frequency. This new filter design is shown in the photo below in the filter's response curve, especially annotated by W3EFG.



C&E TXSF-60.25 ATV QRM Filter

By the way, C&S can probably supply similar notch filters for other ATV input frequencies (i.e., 439.25, 427.25, or 426.25) that may have QRM just below and outside the ATV channel, but near its passband.

TEST RESULTS WITH ONLY THE 61.25 (CH. 3) NOTCH FILTER:

The initial 433 notch filter we were using was removed at Beville and just the new cable channel 3 CCTV filter put in after the 434 ATV converter and before the cable channel 3 demodulator. (Dave's, KC3AM's, donated home brew slug tuned, copper-pipe, cavity, sharp notch, filter was left in, connected after the Spectrum International interdigital filter and just before the crystal controlled 434 converter.) I estimated the overall QRM interference was reduced about 75 to 80 percent!! The stronger QRM still did come through but the lessor QRM was virtually eliminated, especially with the stronger ATV input signals into Beville.

In a sense, this nominal \$20 filter is considered a "break-through" at the DBARA ATV repeater receive site. We now can see each other most of the time even when the random and periodic QRM is rather bad! Also the color and audio appears to look better, since we are not now messing up the ATV carrier and pass band like we did with the 433 notch filter.

AN "ATV INPUT SIGNAL SIMULATOR" IDEA:

At Beville, our original receive site, I developed what I call an "ATV input Simulator". This consisted of a nominal 10 milliwatt cable transmitter on Ch. 59 (near 434, or 433.25) which feeds an old vertical antenna (just below our main 434 10 dB gain vertical antenna) with marginal (wet?) 9913 cable. I used an old Commodore 128 computer's opening screen video which has a black field with a green border. This is powered up, as needed, remotely via DTMF tones. This simulates a "weak 434 ATV input signal". All the various QRM signals, are then clearly seen and often digital audio and/or varying pitch audio signals are sometimes heard.

The interesting thing we noticed later, after installing the subject CCTV notch filter, is the ATV simulator input at Ch. 59 (433.25) is GREATLY attenuated with the new Ch. 3 notch filter! So much so, that it actually drops our simulator out entirely! (I tried to raise the C-128 video and sync levels with a home brew video amplifier to see if this allows us to see the simulator though our Maley transmitter, but no good!) Finally, we decided this ATV Simulator does not work with the new Ch. 3 notch filter and it was shut down!

This result verifies that the Channel 3 filter above is doing its job to knock out most of the QRM around 433 MHz! Of course the ATV simulator idea would work much better using a flea power milliwatt or greater ATV transmitter (like used in balloon flights) exactly on 434. PC Electronics sells these low power transmitters. We may try this later.

I think my simulator idea is/was a very "clever approach" to actually see the QRM over the ATV repeater, when there are no stations are around to transmit video! You ATV'ers with QRM problems should try implement this "ATV Simulator" idea. Let me know how it works out for your system, OK? Usually both video QRM is seen and audio (digital bursts and tones) are heard as well.

Fortunately at our Maley transmit site, using our newly acquired "old commercial VS-100 10-video inputs ATV repeater controller" donated by Dave, KC3AM, plus our home brew ATV controller (still in use), we are able to turn on via DTMF tones both the ID video channel generated at Maley as well as the received 434 ATV input channel and observe the QRM mixed with the ID channel video (which supplies the sync) to key the 421.25 ATV output from Maley. This makes visible (with also any audio present heard) any input 433- 440 MHz carrier and QRM signals (without sync). This acts like a very effective ATV simulator, a nice bonus without any requiring any additional hardware to evaluate the QRM at Maley!

USE OF THE CH. 3 NOTCH FILTER

I put one of these Channel 3 notch filters in at our single vertical antenna Maley site. I inserted this filter just after the crystal controlled ATV convertor feeding the cable demodulator on cable Channel 3. It appears this filter DOES reduce the QRM interference somewhat, but does not appear to reduce it as much as it does at Beville. The QRM around 433 generally is less at Maley than at Beville, but in the early afternoon and evening is often a lot stronger! The interference can make our one-antenna ATV repeater useless for short periods, often during our ATV net time on Thursdays about 8:00-9:30 PM when we want the best performance, Hi!!

CONCLUSION:

This QRM around 433 has been plaguing our ATV activity in the DAB area for several years now!! We have been totally unable to identify and locate the sources from our limited Fox Hunting efforts, and it has been getting worse with little chance of eliminating the sources, in my opinion! Use of this filter at Beville now allows us to receive our 434 ATV signal with usually only modest QRM or interference. Without this filter, Beville, as a 434 ATV input site, was usually not usable at all! Our Maley one-antenna ATV repeat function usually works the best, except for strong QRM for short periods!

Finally, I feel we have come up with a "cheap CCTV notch filter" that promises to reduce this QRM interference to an acceptable level so as to make ATV activity through our DBARA two site ATV repeater usable! Those of you at other 70 cm ATV repeaters who use 434, or some other ATV input channel that is having QRM just below the ATV input channel (i.e., 439.25 or 427.25, or 426.25 MHz) should contact C&S and have them design and supply one of these receive-only notch filters for your ATV repeater. Please give me some feedback as to how well they might work.

Contact Tracy at C&E if you need similar notch filters for other higher frequency ATV bands other than the 70 cm band from 421 to 440 MHz. Maybe he can come up with some suitable "cheap" CCTV (receive only) notch filters for these higher ATV bands 1.2 GHz. and above, Who knows?

ATVQ

Correction

RE: Article in the Spring 2006 ATVQ - "Update Of The KD2DB Video Modulator", in the title block of the schematic states, "PC Electronics Video Modulator Update." My company has no connection to this design and do not want any confusion as to any connection by readers.

Tom O'Hara - W6ORG
P.C. Electronics

ATVQ

Contruction: Audio Compressor

By: Horst Schurig - DL7AKE - Email: DL7AKE@aol.com
 Translations: Klaus Kramer, DL4KCK Email: DL4KCK@t-online.de

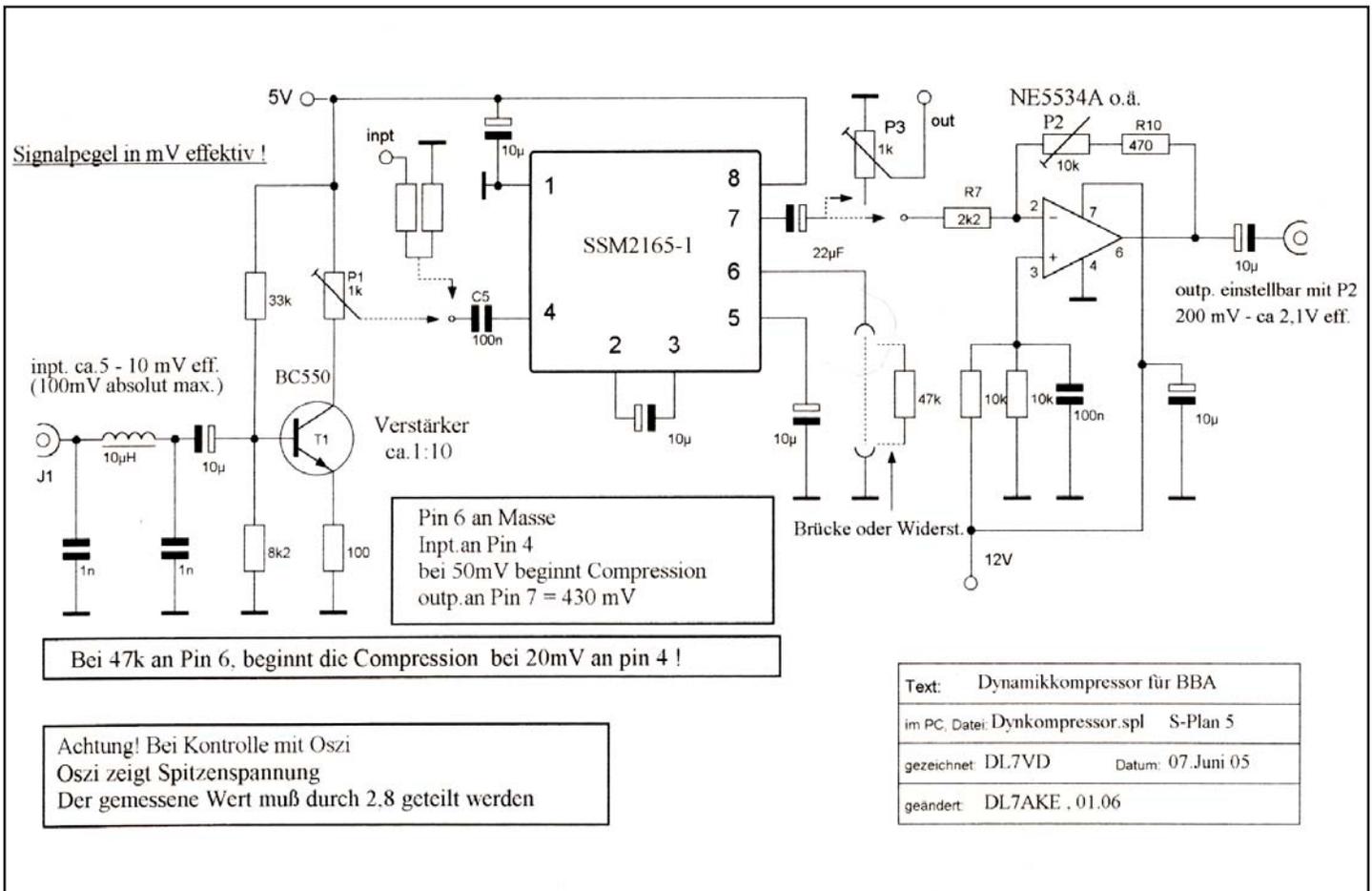
The audio compressor chip SSM2165-1 made by Analog Devices was new to me, but Juergen, DL7VD, produced a test-construction board and let me measure the results.

There may be more similar integrated circuits that I do not know too. At our Berlin ATV repeater, DB0KK, we have been using the audio regulator chip TDA5651 from the beginning. This component was used in audio cassette recorders for automatic level control, and Achim, DC7BW, discovered it and built a small board for us. But the chip has been replaced long ago, and it's functions have a flaw: if the input audio level is very low, the IC steps up the internal gain a lot (componder). Not so with the new test device SSM2165-1 (compressor): from 0 to 40 mV the input level is getting through unchanged. From 50 to about 800 mV at the input the compression takes place without cutting off the sine peaks (audible distortion)! For a decent audio quality the input level at pin 4 should not exceed the constant output level, according to the data sheet around 350 mV. What we have measured (always effective r.m.s. voltage) was about 430 mV! If

you are using an oscilloscope, it is showing peak values, that should be divided by about three for RMS values.

There are two versions: SSM2165-1 and -2, the first one being better suited for our purpose, and of the two designs, DIL8 and SMD, in Berlin we could only get the SMD variant. Now some word on the circuit design. For usage after the receiver's audio output you should add an attenuator, and the direct output at pin 7 has a high impedance. To resolve matching (and long cable) problems an OP-AMP (like NE5534 shown in our circuit design) is advisable. Output level can be from 200 to 2000 mV, adjusted by P2. For microphone level sensitivity you need a transistor pre-amp, the BC550 is a low-noise type with a gain of around 10. Frequency response is linear from 80 Hz to beyond the limit of audibility. We have made no printed circuit board yet, but DL7VD is working on a layout. Questions please direct to DL7AKE@aol.com

ATVQ



First Laser-ATV Input At ATV Repeater

The ATV repeater, DB0TVH, in Hannover (northern Germany) made a first with a Terahertz input, it is experimental in order to encourage trials with optical transmissions. As the detector (an emission electrons multiplier) would get destroyed by daylight after some time, it is only activated at night. Spectral selectivity spreads from 200 nm (ultraviolet) to near infrared at 850 nm. Sensitivity beamwidth is 45 degrees, the detector is mounted on a remote controlled rotatable video camera, and this way any amateur can turn it towards his QTH via DTMF control on 430,100 MHz. In the laser TV transmitter a 20 MHz carrier wave feeding the laser diode is frequency modulated by camera video and audio (FM baseband unit). The red light TX beam is produced by laser diodes from laser pointers or from DVD burners (up to 100 mW). More details see at www.mydarc.de/dj1wf

Some syllabi from the online logbook:

13.1.2006: the first OM is qrv at the optical input, Christian, DH9CHA, transmits with a 4 mW red light laser (from a scanning cash desk) video over about 1300 m distance.

Congratulations!

14.1.: new ODX, DJ1WF/p is beaming from the "Deister" west of Hannover over 23.7 km distance.

16.1.: a small drawback: a trial over 1.3 km with light from a red LED bundled by a big fresnel lens (overhead projector type) fails. Although the beam spot is clearly visible in the repeater camera video (beam diameter about 40 m at the receiving QTH), the amount of modulation possible with this LED is insufficient to get enough signal to noise ratio against the environmental light impact at the optical repeater detector. We have to explore with a spectral analyzer it's amount of noise during full darkness in contrast to the city light's disturbance.

20.1.: Christian, DH9CHA, tries a 654 nm laser diode from a DVD burner with 30 mW, he transmits the first constant color video to this repeater input in spite of heavy rain fall.

23.3.: new ODX, Tom, DL9OBD, beams laser ATV signals with 20 mW from a bank near Eilvese over 30.5 km distance.

17.4.: new try by DL9OBD with an optical system from an old laser printer and 40 mW laser power. Video quality is smooth and nearly noise free.

DrDish-TV With ATV Hints

In his monthly satellite TV magazine via Eutelsat 13 degr. east in December 2005, Christian Mass (PD0NHE alias DrDish) presented a simple ATV receiving method. In the shack of Juergen DG3WZ in Munic (southern Germany) we saw an old analogue Sat-TV receiver attached to a 23 cm band directional antenna and a small video monitor. He received a 23 cm FM-ATV repeater near by (DB0QI), and another radio amateur appeared on the screen and talked to Juergen on a 2 m talk back channel. From April 1st 2006, DrDish-TV is broadcasting 5 hours long each day in German and English language, revolving a weekly magazine edition with Q&A, space news, reports from receiver manufacturers and exhibitions and daily transponder news.

<http://www.hampubs.com>

Occasional commercials pay the bill for this unique satellite channel which uses only 0.7 Mbit/s sample rate in MPEG-2.

Weblink:

www.drdish-tv.com

Galileo Test Satellite Launched

Main purpose of this satellite called "Giove-A" is to safeguard the bands for the new european radio navigation satellite system "Galileo" and to determine the exact orbit parameters within the program "Galileo System Test Bed". Until 2008 four more satellites will follow on for navigation tests, and until 2010 around 30 satellites will be used at the official start of "Galileo" services. The "Open Service" has 4 m resolution with two bands' usage and 15 m with single band usage. "Commercial Service" will employ 1 m resolution and use three bands including 1260 - 1300 MHz.

ATVC-4 Plus

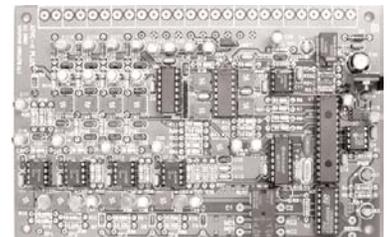
Amateur Television Repeater Controller

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The "Open Service" has 4 m resolution with two bands' usage and 15 m with single band usage. "Commercial Service" will employ 1 m resolution and use three bands including 1260 - 1300 MHz.

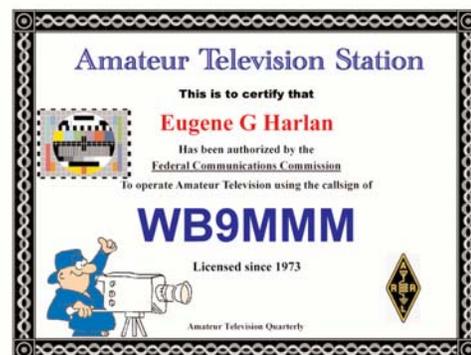
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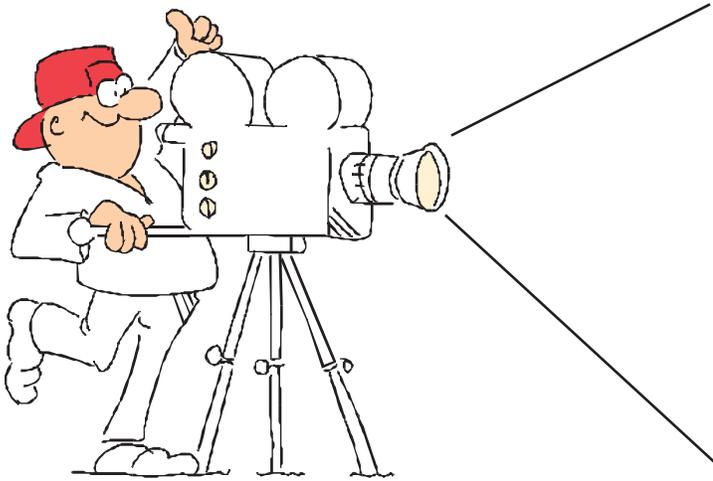
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Amateur Television Contest 2006

Contest period 00:00z 06/01/06 to 00:00z 09/01/06

Contest goal: To raise activity and promote *long haul* contacts on ATV. **This year encourage everyone you see to enter!**

Participants must hold at least a Technician class license and be within the boundaries of North America, Alaska or Hawaii.

In case of multiple Ham occupants, they may share equipment during the contest so long as the intent is not merely to manufacture points. All occupants who enter must submit their own log.

Schedules: The use of schedules is allowed, and can be made by any means available. The use of 144.340 mhz national ATV calling frequency is also allowed and encouraged.

REPEATER CONTACTS DO NOT COUNT. Distance calculations will be between both stations in the QSO with no relay allowed.

Exchange: Callsign with at least P-1 video on any amateur band 70cm and above.

MOBILE or **PORTABLE** stations must exchange their location at the time of contact as determined by portable GPS or other verifiable means.

VIEWER: Station does not have to exchange any video but must be a licensed amateur and confirm at least a P-1 reception report to the transmitting station via 2 meters or another amateur band.

CLASSES: There will be 4 classes for participants:

HOME: Primary location of residence with Fixed Antenna structure. Minimum distance for repeat contacts (75 Miles)

PORTABLE: Station can be set up just for the contest and may not operate from any other location during the contest period. Minimum distance for repeat contacts (50 Miles)

MOBILE: Station can operate stopped or while moving but all antennas must be affixed to the mobile unit and capable of transmitting while in motion. Minimum distance for repeat contacts (25 Miles)

VIEWER: Station must be able to receive video at P-1 signal level and relay report to the transmitting station. Minimum distance for repeat contacts with this class is determined by the transmitting stations type or class.

Scoring System: Each valid contact will be awarded points for the mileage between the two stations on an ever-increasing difficulty per frequency basis as follows:

70cm = 2 points per mile

33cm = 4 points per mile

23cm = 6 points per mile

13cm and above gets 10 points per mile!

A station can be worked for points only once unless they are a minimum distance apart as specified by the class of entry. (See CLASSES) and then they may be worked once in a calendar month through the contest period.

The distance between stations will be calculated by the Maidenhead Grid and sub grid identifier coordinates listed on QRZ.com and rounded down to the nearest mile. Every effort should be made by entrants to verify or update their information before the contest starts. If you do not have Internet to look up a stations coordinates please ask the other station, if they do not know then leave the mileage column blank and it will be determined by the verifier. No changes can be made to coordinates once the contest starts unless you move.

NearSys At Fire In The Sky 2006

By Paul Verhage - KD4STH Email: Paul.Verhage@boiseschools.org

5720 3rd Ave.

Nampa, ID 83686



As you read in the last ATV Quarterly, I was invited to attend the largest high power rocket launch in the Northwest last year (Fire in the Sky, or FITS). Robert Necht, who was in charge of setting up the rocket launch, asked me to give a BalloonSat class after having read one of my Nuts and Volts articles. Well, I was invited back for FITS to do another near space demonstration. It was great fun and this year's launch included several PongSats and my BalloonSat and its flight computer. So this report is on the FITS 2006 launch, or NearSy-06A. This year promises to be busy one with at least five more near space flights.

PongSats

PongSat is a concept developed by JP Aerospace (www.jpaaerospace.com). PongSats are ping-pong balls carrying experiments. Any experiment that can fit inside a ping-pong ball makes a PongSat. Because a ping-pong ball is so small, PongSats allow lots of people to launch experiments on a single near space launch. At FITS 2006 four children sent plant seeds into near space inside their PongSats.

While I think a PongSat is a great idea, I did observe two things I wasn't happy about. First, it's difficult to safely cut open a round ping-pong ball with an Exacto knife. Kids (and adults for that matter) will risk cutting their fingers when trying to cut open a ping-pong ball. The second is that after cutting open a ping-pong ball there's an unusual odor. I don't know how the fumes inside the ping-pong ball may potentially affect an

experiment, but this is definitely a case where a control is needed (that is, another prepared PongSat left on the ground).

Other than these two concerns, a ping-pong ball makes a neat and challenging near space airframe. By the way, a permanent marker is great for labeling the PongSat if you want to make sure everyone gets their PongSat back.

The NearSys BalloonSat

One of my goals has been to improve the design of BalloonSats. A BalloonSat is a miniature balloon spacecraft, and colleges and universities often use it to introduce non-engineering students to the field of engineering. Unlike the near spacecraft, a BalloonSat doesn't carry radio gear or a GPS receiver. Instead it needs to get a lift from traditional near spacecraft carrying tracking equipment. Since it doesn't carry tracking gear, a BalloonSat is a fast and easy way to get people involved in near space. The improved BalloonSat design flown on NearSys-06A fixes what I consider to be the most significant problems with traditional BalloonSats (the traditional BalloonSat is still a good concept – it just could use a few improvements). Here's a brief explanation of the improvements.

The airframe of the traditional BalloonSat is made from ¼ inch thick foamcore. Usually it's covered in aluminum tape and has a single tube running through its center (the tube is where the load line carrying the BalloonSat passes through). I discovered that a sheet of ¼ inch thick foamcore is heavier than ½ inch thick sheet of Styrofoam and that it doesn't have the same insulating capability. This makes ½ inch thick Styrofoam a better construction material than foamcore. The aluminum tape adds more weight than benefit to the BalloonSat. My tests show that ½ inch Styrofoam is as warm as aluminum covered foam core.

The single load line passing through the BalloonSat lets the BalloonSat twist sharply during the flight and I can't imagine that is good for camera images. My triple load line is more secure than a single load line and makes twisting more difficult. You can read my BalloonSat article online at Parallax for complete

information (at www.parallax.com, then click Resources > Customer Applications > Science > Near Space > Nuts and Volts July 2005).

For experiments, traditional BalloonSats carry a camera, timer, and Hobo data logger. The camera timer is a 555 IC driven relay that operates an APS camera. The Hobo is a programmable data logger with eight bits of resolution that can measure sensor voltages between 0 and 2.5 volts. I like the Hobo because it's small, lightweight, and easy to program. But I find the timer kit used in many BalloonSats to be expensive, heavy, and a voltage hog (it runs off a small 12 volt battery from a remote garage door opener).

After redesigning BalloonSats, I began work on a BalloonSat Flight Computer (BFC) to replace a Hobo and 555 timer. The BFC lets BalloonSats operate more experiments than a Hobo and 555 timer can. However it requires more programming, so the BFC may not be suitable replacement for every BalloonSat. But I think it's ideal for students who are ready to move beyond the introductory BalloonSat design.

The microcontroller in the BFC is the BASIC Stamp 1-IC. It contains 256 bytes of EEPROM for program storage and 14 bytes of RAM for variable storage. This may not sound like a lot, but the entire code for the NearSys-06A mission fit within that amount of memory.

The BFC has four analog data channels, two digital control or data channels, and 1 KB of data storage. The four analog channels are the inputs to an ADC0834, a four channel, eight-bit analog to digital converter (ADC). The ADC0834 in the BFC accepts sensor voltages between 0 and 5.0 volts and converts them into a digital value between 0 and 255 (that's the eight bits of resolution). So the BFC can tell the difference between two voltages that differ by 19.6 millivolts. Each analog channel in the BFC has its own +5V and ground connection. This way, sensors are powered and digitized by simply plugging them into the BFC.

The two digital channels also have their own connection to +5V and ground. The digital channels are for

experiments that need direct connection to the micro-controller in order to operate. Two typical examples include cameras and servos.

Data storage is provided by two 93C66 EEPROMS. With 1 KB of data storage and each ADC value being one byte in size (which is why I selected an eight bit ADC instead of the 12 bit ADC like the MAX186), I can store four analog values every 35 seconds (assuming a 2-1/2 hour mission). That's a resolution of 700 feet in altitude during ascent, assuming an average climb rate of 1,200 feet per minute. But if data is only recorded during ascent (which is often the case with weather stations), then the altitude resolution in the data becomes 350 feet on average during ascent. So one thousand bytes of data is enough for good altitude resolution while being small enough to wrap your mind around the data.

I'll make a BFC printed circuit board for interested ATV Quarterly readers. Contact me (my email address is at the top of the article) about purchasing a printed circuit board and I'll shoot the PCBs at home if enough of them are ordered. If it turns out there's a large interest in the BFC, I'll make arrangements for a board house to manufacture them instead. So now that you know what went up on NearSys-06A, let's look at what happened on this mission.

It's a Good Day for a Near Space Launch

But on Saturday it looked bad as FITS 2006 experienced strong rains and hail. Fortunately the weather service predicted the severe weather would clear out that night. Flight predictions for this mission were made at the Near Space Ventures website instead of installing the Balloon Track program into a PC. The Near Space Venture's website is a very convenient website and I strongly encourage you to try it out (www.nearspaceventure.org).

We spent most of Saturday afternoon indoors building and loading four PongSats. Robert Necht remained busy attaching an amateur rocket to the near spacecraft. With that, we called it a day and drove over to the Mansfield high school for dinner.

Our tracker for Sunday morning was Dave Dobbins (K7GPS) of Northwest APRS. If you don't know

Dave, then check out his website at nwapsr.info. It's loaded with information on APRS and his annual APRS Gathering. Based on wind predictions, we had the best chance to recover the near spacecraft close to the FITS 2006 site if we launched near Jameson Lake (located about eight miles south of Mansfield, Washington). So after a 6:00 AM assembly, our caravan headed south. But before unloading the cars at the lake resort we first checked with the owners. Like most people we run into on these flights, they were delighted to have us fill and launch the balloon at their resort.



The launch crew for NearSys-06A. They look pretty happy for having to get up so early on a Sunday morning.

The filling and launch only took 45 minutes. The launch used the standard Hail Mary launch technique in which the launch crew holds the stack down wind from the balloon. When the balloon is released, it climbs away pulling each element in the near space stack out of everyone's hands. So it's important in a Hail Mary launch that the launch crew only supports their element and doesn't grip it. Since the cameras are started before launch, we usually end up with some photographs of the launch team. In the photograph below you can see our youngest launch crewmember supporting Robert's rocket.



Smile, you're on near space camera. This member of the launch crew was taking safety seriously. He's holding the rocket up over his head.

Horizontal Images

The highest altitude photograph taken of the horizon was recorded at an altitude of 78,000 feet. As luck would have it, the sun was in the camera's field of view. While it adds to the imagery, the sun also washes out some of the detail. You can see in this image that the sky is black (in part no doubt due to its contrast with the sun) and there's a slight curvature to the horizon. It was partly cloudy that day and the eastern horizon is covered in clouds. But there were enough cloud openings to see the ground in most of the photographs taken from the vertical camera.



I would love to see this scene for myself, but I hate to fly.

After the worst part of the descent, what's left of the burst balloon falls over the parachute and stops jerking the parachute around. In the next photograph, you can see part of the burst balloon and its load line hanging in front of the horizontal camera.



In 55 flights, I have yet to see a burst balloon create a problem as it lays across the parachute.

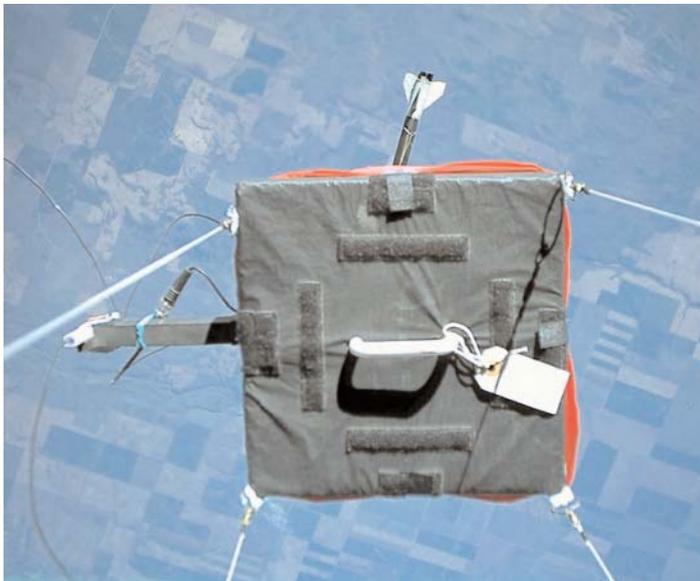
Vertical Images

For this mission, the vertical camera was aimed down to the ground. At launch the near spacecraft began drifting to the southeast. But before we left the resort, the near spacecraft began drifting to the northwest. By the time it had climbed to an of altitude of 19,000 feet the near spacecraft was drifting back over the Jameson Lake Resort as you can see in the following image.



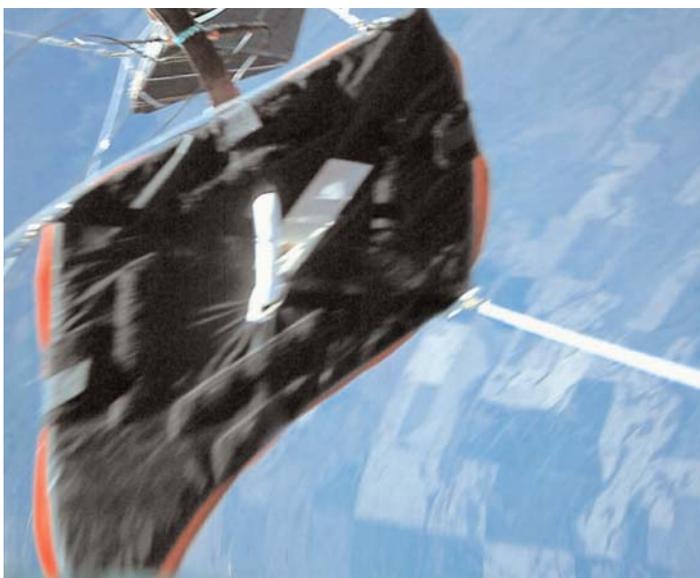
Jameson Lake at 19,000 feet.

Since the balloon burst at an altitude of 81,650 feet, the image taken at 81,000 feet was the calm before the storm. Hanging at the bottom of the near space stack you can see Robert's rocket (sans engine). This is the first time that I'm aware that an amateur rocket reached an altitude of 81,650 feet without a rocket motor.



This highest altitude photograph recorded on this mission. Below the bottom airframe is the Robert's rocket.

Unlike a film camera, which records an image on the entire frame at once, a digital camera records an



There's a lot of chaotic motion early in the descent. So no, this is not a picture of a near spacecraft about to begin its plunge into a black hole.

image by scanning across the CCD. Last year I saw the interesting effect this can create and the image below is an extreme example. This was taken at an altitude of 65,000 feet.

Probably the funniest photograph is of the burst balloon lying on top of the bottom airframe. It creates the appearance of a near space amoeba attacking the near spacecraft.



I can see the makings of a really bad science fiction movie here.

Data from NearSys 06A

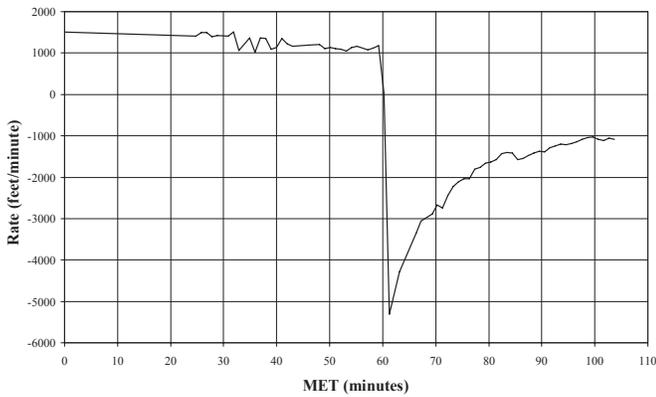
NearSys-06 A was a hot launch. The climb rate for the stack was 1,500 feet per minute at launch and 1,200 feet per minute at burst. After balloon burst the initial descent is very rapid in the thin air since it doesn't create much drag. You can see how ineffective low-density air is slowing down a parachute in the chart below.

See climb chart next page.

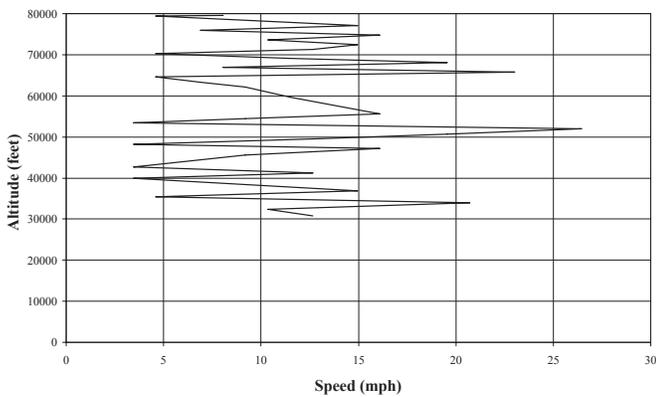
An interesting aspect of this flight is the missing jet stream. In the chart below, the wind speed and altitude data came from two different GPS sentences (the GGA and RMC sentences). Notice how the wind is very variable, but that it never reaches high speed nor is there a particularly strong wind at 40,000 feet, the usual altitude of the jet stream.

See winds chart next page.

NearSys 06A
Climb Rate

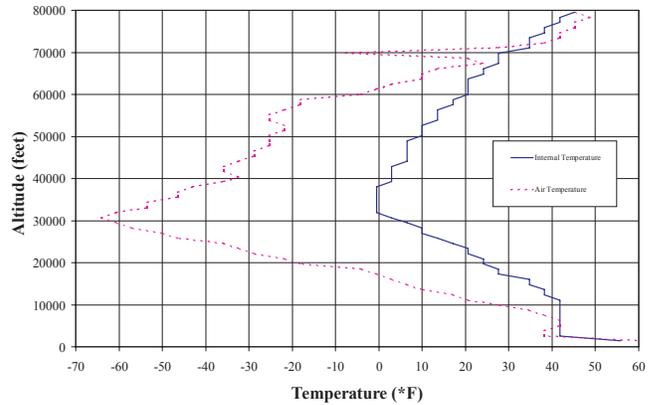


NearSys 06
Winds



The BalloonSat flight Computer (BFC) recorded the internal and external temperature during the mission. Since the BFC isn't connected to a GPS, it has no way of recording the altitude. So I combined APRS data from the flight with the science data from the BalloonSat to create the following chart of temperature and altitude. Since it was still spring, I expected the air temperature to drop a little below the typical summer low of -60 degrees Fahrenheit. What was surprising is how the lowest temperature occurred at an altitude of 30,000 feet. The lowest air temperature appears at the boundary between the troposphere and stratosphere (this is called the tropopause). During the summer my science data shows the tropopause to be at an altitude of 50,000 feet and in winter at a lower altitude (usually around 40,000 feet). But at FITS 2006 the tropopause was at an altitude of 30,000 feet. I've read that the tropopause gets lower as you approach the poles, so this chart may be illustrating that fact (I usually launch at lower latitudes than in mid-Washington).

Temperature
(BalloonSat)



The recovery of NearSys-06A would have been a piece of cake if it hadn't been for country roads. The chase crew drove several miles out of the way to avoid getting stuck in what looked like a very muddy road. In the end we found out that the near spacecraft only recovered a mile from the entrance of this road and it wasn't as bad as it initially appeared. Since we drove a longer route, we missed watching the near spacecraft land. The longer route also damaged an oxygen sensor in my car (gravel roads are not designed for low clearance sedans like mine). But luckily for me, I work at a Vo-Tech high school with an excellent auto shop.

Well, that was the flight of NearSys-06 A. It was a great mission; I just wish the weather had been a bit better on Saturday. If you want to see the big rockets fly, then visit the Washington Aerospace website and plan to attend Fire in the Sky 2007 (www.fireinthesky.org). When you get there, look for me. You can't miss me; I'm the guy with the balloon.

You can contact me by email at, paul.verhage@bois-eschools.org.

Onwards and Upwards, Paul



ATV Provides Live TV For Hospital

By Mike Watson - WC9L Email: wc9l@sbcglobal.net
1201 East Second St.
Centralia, IL 62801



The Cart 1

In the heart of Southern Illinois is a small town named Breese. The towns in Clinton County are small Catholic communities with strong German heritage. Everyone knows everyone and the bonds are close. So when the town of Breese made plans to celebrate their Sesquicentennial, everybody was excited about it. A week of fun filled activities were planned which included a car show, The Vietnam Wall, two nights of fireworks, kids air balloon rides, a visit from an Apache helicopter and a Rescue helicopter, teen dances, live bands, food and drinks. The activi-



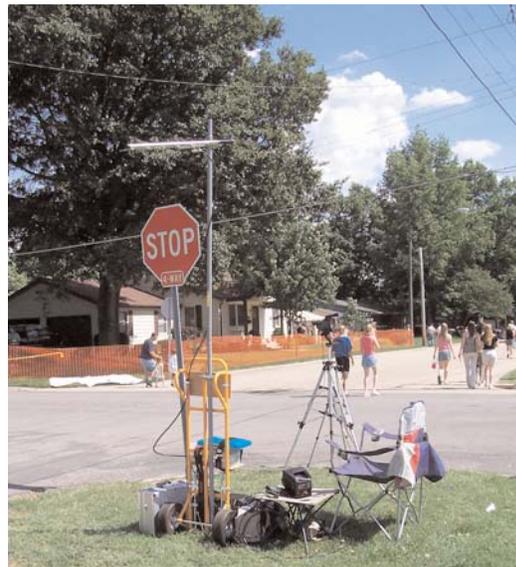
The Cart 2

ties were not complete, however, until two parades were planned featuring the world famous Anheiser Busch Clydesdales horses decorated and hitched up to pull the famous red antique beer wagon. These magnificent "gentle giants" were the main attraction throughout the week accompanied by an eight-member crew, a donkey, and a Dalmation named Otis. All of the activities and fun planned for the May 29th- June 4th.

Sesquicentennial events were the buzz of Clinton Countians. Also heard was, "I will be working at the hospital that weekend." Or "The patients won't be able to see the parades." The

local hospital is equipped with over-the-air local TV stations, several satellite channels, and one close circuit media channel, which left no access to coverage of the parade by the media. No one thought of showing the two parades for the patients until Mike, WC9L, heard about the Sesquicentennial Celebration. As he heard people say this will be fun for Breese, Mike thought, "This will be awesome for Amateur Radio."

WC9L asked his friend Ken, KK9N, if he wanted to do something big for ATV and Amateur Radio. After a brief discussion, plans were in full bloom to transmit both parades back to the hospital so that the video could be input live on the close circuit media channel.



The following day Mike had a meeting with the hospital administrator to explain the idea. She loved the idea, and everything was good to go until Mike was told that he didn't have approval from the city to transmit the parades. One call to the Mayor

fixed that problem, and he won an enthusiastic approval after the proposed idea was explained. The project had only one week to get ready, and the pressure was on. But not to fear for the task at hand was all figured out and ready to be implemented.





Ken and Mike decided to use a two-wheel dolly to support and carry the equipment. Equipped with a deep cycle battery, a P.C. Electronics TC 70-20s, a Sandisk card reader for ID, a 6 element 440 beam on a ten-foot pole, the two wheel cart would work great. The video input was on a Bogen tripod separate from the cart. The audio was also separate on another tripod to be placed at street level. A flashing red light to indicate “on the air” and signs with “LIVE TV from KK9N-TV” decorated the cart. Business cards were made to hand out on how to become an Amateur Radio Operator. The equipment was ready in one day.



That evening Ken and Mike conducted on the air test of the picture quality back to WC9L’s QTH with a P.C. Electronics TC 70-1 for receive. The day before the first parade, Mike went to the hospital and mounted an M2 21 element ATV beam for receive. He ran LMR 400 down to the receiver. The receiver was fed into a Samsung DVD recorder and then out to one TV for a monitor. With RCA cables, the composite Video and audio would be fed into one of the many modulators in a rack system. To inform St. Joseph Hospital TV viewers, Mike used the hospital computer system utilizing a power point program to announce the upcoming live video of both parades by Amateur Radio over the media channel.

That Saturday, 15 minutes before the parade, Ken KK9N brought up the transmitter on 427.250 MHz with live color video. 427.250 MHz was chosen because Southern Illinois has several active ATV’ers on 439.250 during the contest. Mike WC9L adjusted the TC 70-1 to a perfect picture on the monitor

then hit the record button on the DVD recorder. He switched from the computer feed on the close circuit to the video out of the DVD recorder. During a quick walk through the halls of the hospital, Mike noticed that every TV in the hospital was tuned to the LIVE Sesquicentennial Celebration. Mike walked out front of the hospital to call Ken on his HT. With a very good feeling he said “ KK9N we have P-5 picture on every TV here, WC9L”. The picture quality was actually better than the local TV networks. It was time to walk around the hospital and enjoy



the reactions of the people watching the ATV video. Mike would ask, “What are you watching”? They would say, “ The Breese sesquicentennial Parade, what channel is this?” With much enjoyment it was time to brag about Amateur Radio and ATV. Most people could not understand the connection that Amateur Radio had with television. KK9N showed video for about four hours Saturday. He used an old unhealthy Canon A-1 video camera with no tape for video input. On one occasion the camera thought that it had run long enough and shut down. On a separate occasion a person tripped over the video input causing another brief black screen. Good thing Ken brought along a monitor at his end. Both brief black screens were caught and fixed in no time. The theme of the parades was “Then and Now.” To illustrate then and now, a few antique tractors were in the parade. But by far the most exciting was an actual running steam tractor. The steam tractor had a roof the full length of it’s body and could blow its whistle like a train. KK9N and WC9L both went home very happy that evening. The next day Ken and Mike were back to set up around 12:00 with the parade to begin at 1:00 p.m. After the setup was complete, Mike went back to the hospital to flip on the receiver, put the DVD on record, and input the video into the close circuit system again. After everything was running once again, Mike went back to the Parade to run the camera. He enjoyed zooming and panning to follow the action. One gentleman heard what we were doing and asked if he could step in front of the camera to wish his friend back at the hospital Get Well Wishes. His wishes were made possible in between the floats. Mike ran about 2 hours of video Sunday until the parade was over. Ken, KK9N, kept the transmitter up until Mike went back to turn off the DVD recorder. Ken and Mike later took down the 21-element antenna and loaded up the equipment. What a nice weekend showing a small community hospital what Amateur Radio can do with ATV.



Dayton 2006 - A Recap

Well, Dayton hamvention is over and I am somewhat rested following three busy days. For me, lots of people to talk to, but they were not buying as before. Yearly ups and downs, I suppose.

Thanks to George, K4GVT, we had ATV to receive from his 2.4 GHz feed in the flea market. He sent along some pictures and the following message:

Hello Gene, it was nice to see you at Dayton 2006, and provide the ATV feed to your booth. Attached are some pictures of you as well as my ATV setup.



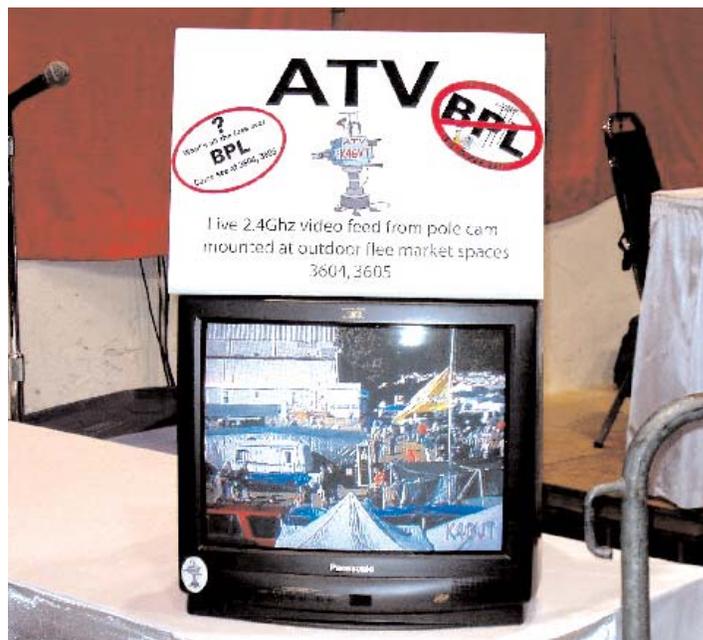
Your booth and you.



Our outside tent showing the pole cam



A closeup of the pole cam and pole mounted transmitter



The TV at the prize booth.

For battery life we cut the TX power to 8 watts instead of the 30 watts it's capable of. A corner reflector was used to widen the beam to cover you as well as the prize booth. The camera is on a remote pan and tilt X10 unit (very poorly made, almost disposable after use). Once programmed it would sweep the programmed area until shut down. If you have any questions let me know. Hope we can do this again next year. I have my hotel reservations placed and looking forward Dayton 2007.

73,
George, K4GVT
k4gvt@comcast.net

Thanks, George, for going to the trouble of setting up and loaning us the antenna. We had some interference as soon as the show opened, but at least this year we did have a picture. The increase in power helped!

It was too bad that the usual seminar did not happen, but thanks to Mike, WA6SVT, and Ron, K3ZKO, (maybe others, that I do not know about), there was a seminar of about 45 minutes on late Friday afternoon. Next year, I hope that we can get our, what I call "normal", time slot back.

Friday nights meeting was well attended, and the food and drink was good. It was a little strange that after eating, we had to move outside, but for a while it was OK. I think it started raining after Shari & I left.

We also have our reservation in for next year for the booth. I hope to see you all again, and maybe even at a hamfest in the Mid-West.

Gene - WB9MMM
ATVQ



Spring 2006 ATVQ

Hi Gene,

To start, TNX for ATVQ.

I'm probably not the only one to catch this (in ref to Henry, AA9XW's article), but the Volt is named after the Italian physicist Alessandro Volta (1745–1827), who invented the voltaic pile, the first chemical battery, not the philosopher François-Marie Arouet (21 November 1694 – 30 May 1778, better known by the pen name Voltaire.

In ref to Steve Anderson's article on using your iPod as a video source, the web sites for the image and sound files requires a log in / sign up.

Not for me but, I've been using my iPod Gen 4 (iPod Color, aka iPod Photo) for the same thing for about a year.

You can find my color bar .bmp file and a 60 second 1000 Hz tone file in one zip file at <http://cmtelephone.com/mark/color-bars.zip> (for free, no log in, no registration!)

73, de WA1ZEK / VK2IFH

Mark Mokoski - markm@cmtelephone.com

Editor: On the subject of "Volt", I checked on www.dictionary.com and found this which seems to back up your claim:

Main Entry: volt

Pronunciation: 'vOlt

Function: noun

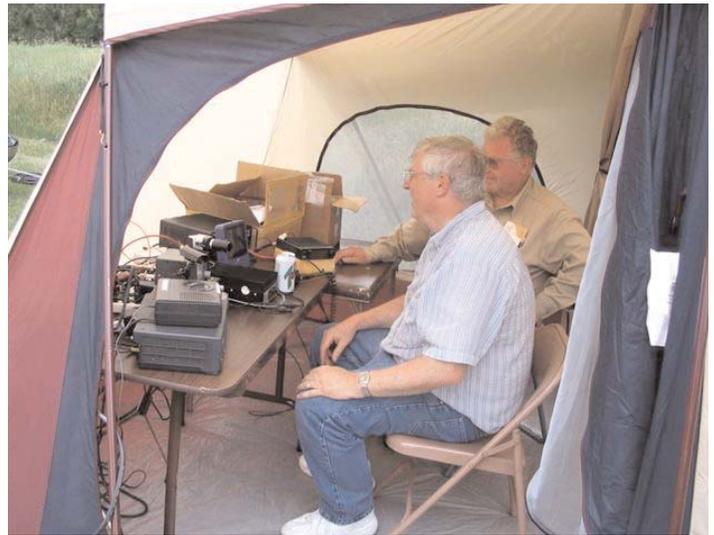
1 : the practical mks unit of electrical potential difference and electromotive force equal to the difference of potential between two points in a conducting wire carrying a constant current of one ampere when the power dissipated between these two points is equal to one watt and equivalent to the potential difference across a resistance of one ohm when one ampere is flowing through it

2 : a unit of electrical potential difference and electromotive force equal to 1.00034 volts and formerly taken as the standard in the U.S.

Vol-ta /'vol-tä/, Alessandro Giuseppe Antonio Anastasio (1745–1827), Italian physicist. Volta served as professor of physics at the University of Pavia, Italy, from 1779 to 1804. From 1815 he was director of the philosophical faculty at the University of Padua, Italy. His interest in electricity led him to invent in 1775 a device used to generate static electricity. In 1800 he demonstrated his electric battery for the first time. The volt, a unit of potential difference that drives current, was named in his honor.

Source: Merriam-Webster's Medical Dictionary

ATVQ



ATV At Rockford, IL Field Day

We had ATV at our Field Day site, and were able to make two contacts. We did expect, or hope, for a few more, but was hearing nothing on 144.34 MHz. Well, we found one of the reasons was that we were using our FT-8100 from home, the one that Shari & I use all the time, and it was deaf! Most of the time when we use this radio it is on the local repeater located not too far from our house. That always came in just fine. I had noticed that once I could not hear what my CPU-2500 heard simplex, but blamed it on the fact that the CPU-2500 was on a beam and the FT-8100 was on a vertical.

Well, I figured it out when at the field day site, I was able to hear the person that I was trying to hear with the rubber ducky on my handheld, and not with the 2 - meter beam connected to the FT-8100.

I did a search on the Internet for problems concerning the FT-8100 and sure enough, it talked about deafness and the fact that it probably had a blown FET in the front end. Well, just today I got it back from repair (could not find the FET to buy it), and we are back in operation!

Gene - WB9MMM

ATVQ

Sewer Pipe As Radome

Q: If I use sewer pipe (white)... as a radome over a S band helix will it adversely affect the characteristics of the antenna?

A: I just tuned up a 2m Jpole inside a 1" PVC pipe for my ocean going APRS buoy and it turned out to be more than inch shorter for resonance inside the pipe than outside.

So yes, the dielectric constant of PVC is not the same as in air, so the dimensions have to be shortened to perform the same.

Bob, WB4APR - bruninga@usna.edu
from amsatbb list

ATVQ

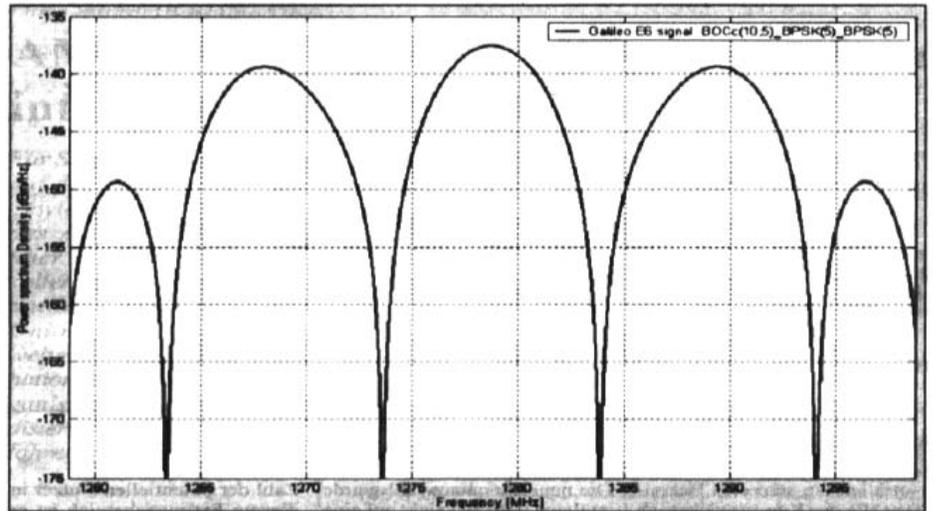
Excerpt From TV-AMATEUR 139 (AGAF e.V.)

ATV meeting Ulm (Bavaria)

I remember my first visit at the yearly meeting in Dornstadt, north of Ulm, at "Hotel Krone", being located on such a high site that everybody would rather think of an ATV field day location than a meeting place. Indeed the ATV repeater ULM (DB0ULD) is near by in Ulm-Böfingen, and the Valluga repeater deep south in Austria is receivable here.



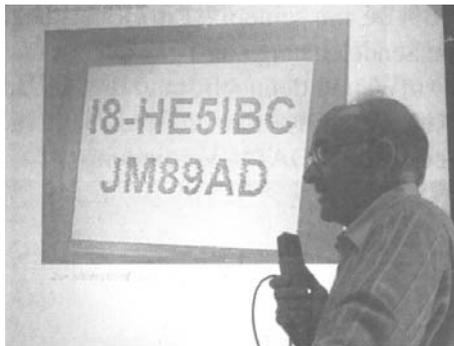
In 2005 Rolf Schairer, DL6SL, addressed the meeting and handed over to Ewald, DK2DB, who presented best regards from DARC committee member Dr. Walter Schlink, DL3OAP. Then Ewald admitted that the major question among users of the 23 cm band cannot be answered now: "Galileo", the upcoming GPS rival in Europe, could possibly pose a threat to amateurs. Ewald remembered an incident in 1994 when the local land surveying office was not able to use GPS because of too wide bandwidth in their receiver front ends. Remark by DH6MAV: let us hope that the manufacturers will learn enough now during their field test (in the Berchtesgaden area), but this needs some amateur activity on 23 cm too!



Galileo E6 Signal

"La Grande Bleue" Activity On The Mediterranean Sea

Bernd, DL9PE, already reported from the ATV DX success in TV-AMATEUR 138 on, but now we were able to see the protagonists and their equipment together with maps on the big screen. Thinking of the present 10 GHz ATV distance record from 2004 - over 1564 km between Italy and Spain - one could dream of the next goal. Bernd located the route Egypt - Spain with a smile.



These achievements do have a reason - ducts across the Mediterranean sea which channels the rf in a hose type way. Required for this is a very smooth sea and calm weather conditions. In recent years they tried in vain contacts from locations at 480 m and 700 m ASL. Then the engaged Swiss amateurs found hints on Internet pages originated by US marines. They had worked with rf propagation over sea area. Now "sea level height" was hip, to be precise: 30 m ASL in Spain and 60 m ASL in Italy.

The "Grande Bleue Contest" takes place on the last July weekend every year. In use are dish diameters of 1.5 m with 15 W rf power on 10 GHz in Spain and 1.2 m with 23 W in Italy. For one week they made contacts in SSB on 2 m, and best rf levels were achieved between 11 and 15 o'clock. On first of July the ATV signal came through with heavy QSB, and for only 20 minutes supports were P3 and P4. Even a full P5 was possible on another route from Melilla (Northern Africa) over 1153 km to Spain.

DATV-DX with 10 mW

The highlight seemed to me a digital ATV contact over "only" 450 km from Sardinia to Spain - IS/HB9IBC reduced his output into a 1.2 m offset dish from 10 W to only 10 mW, and the Video stayed stable! Maybe this is the furthest DATV contact until now. Bernd pointed out to use sturdy tripods, in fact astronomical tripods are used instead of cheap photo camera stands in order to carry more than 10 kg load. Seeing all the voluminous antennas and TX, RX and power generator equipment it is obvious that this needs a van. Bernd, DL9PE, campaigned for German participants, and his personal interest band would be 24 GHz. More details with pictures on the (french language) web site www.swissatv.ch

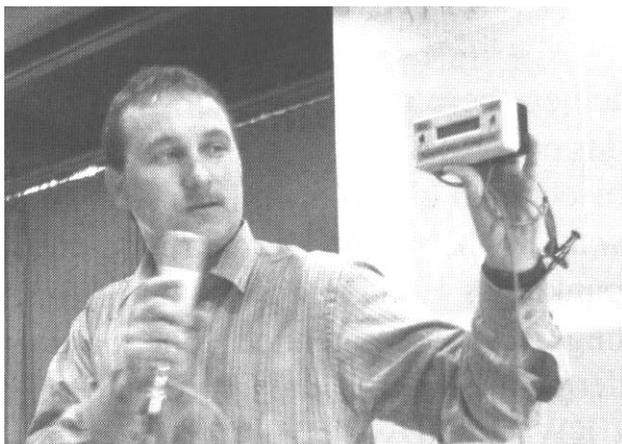
3D Image Acquisition And Transmission

Hans, DC9MD, presented methods and tricks of stereoscopic imaging. At first there is the anaglyph technique, where the two stereo perspectives are filtered in different colors. Spectators are wearing special eyeglasses (commonly red and cyan, or red and green). Nowadays the red/cyan version is commonly used because of better colour blending in the human brain. Colour blind people are excluded from this method.

In video systems the stereo information can be transmitted by an interlaced sequence of "fields". One field contains only the odd-numbered lines (forming the left hand vision field), and the next contains only even-numbered lines (forming the right hand vision field). Because of persistence of vision, pairs of fields are perceived at the same time, giving the appearance of a full frame (on a raster-scanned display device, such as a cathode ray tube, CRT). Stereo perception is produced by using LCD shutter eyeglasses switching in sync with video fields alternately left or right hand vision through. Because of the low field rate (25 Hz twice) it is advisable to interpose a line doubler device in order to reduce the "twitter" effect. LCD shutter glasses are more and more common in combination with PC games and graphics cards.

Another method is polarization, where two images are projected superimposed onto the same screen through orthogonal polarizing filters. The viewer wears low-cost eyeglasses which also contain a pair of orthogonal polarizing filters. IMAX-3D cinemas made this version very popular. A simpler method useful only with video or film is utilizing the "Pulfrich effect" by constant motion on the screen from left to right. The spectator wearing adequate filter glasses (left eye blank, right eye about 50 percent darker) receives an impression of 3D depth because of delayed image processing of the right hand vision in his brain - strange news, isn't it?

Concerning the PC graphics card: there are some versions which don't need a special line doubler (being fast enough to produce 120 Hz field rate or more). One example is the "ASUS V8 420 Deluxe" or subversions like V8 440 and V8 460 with higher prices. Hint: these cards are not grounded at the output, you need optocouplers to attach further devices (attached PC monitors should have multisync capacity!). Web: www.hawe3d.de

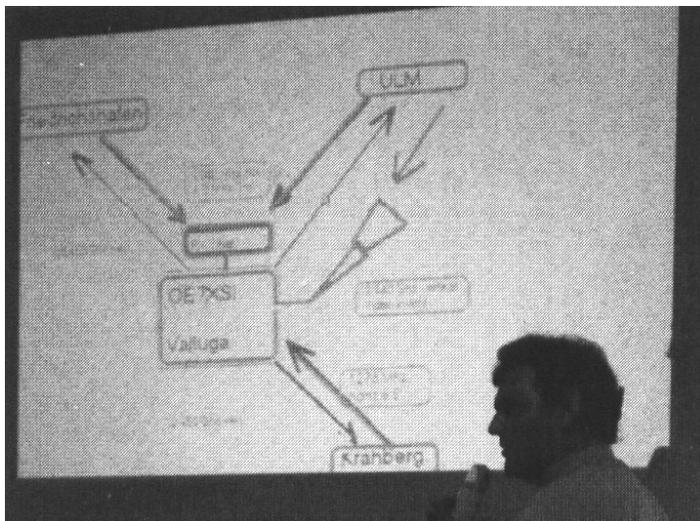


Home Made Testing Device For Electrolytic Capacitors

Peter, DL2GMP, presented his newly developed measurement method for in circuit testing of electrolytic capacitors. Then he switched to the new ATV repeater DB0UTZ on the "Hochsten" Mountain near Friedrichshafen (Lake Constance), where he was able to install a baseband video feeding from the tower base over 200 m to the top via fiber optic cable sponsored by Swiss OMs. The aim is to transfer the 7 MHz video bandwidth without adding side noise on the long run. Only power supply of 20 V is fed via copper cable and stabilized at the repeater site on top (975 m ASL). Bernhard, DG8GBB, contributed a repeater control unit with microprocessor and DTMF control. Five input channels are de-coupled by conventional relays in order to avoid damage by high voltage from lightning. He will try to provide a kit for nearly 100 Euro, contact b.bantle@tensionmail.de End of 2005 DB0UTZ should start operation.

Valluga ATV repeater OE7XSI (Austria)

Anton, DG2MAJ, commented pictures by Darko, DB7DBH, sysop at OE7XSI, which were projected via video beam. Wonderful panorama views showed each video link direction, for instance over 140 km to Ulm (Germany). More eastern there is Augsburg, but also Friedrichshafen (Germany), Krahberg (Austria) and Swiss regions near by are getting good signals. The highest German mountain "Zugspitze" would be possible, but who will install ATV there?



The input frequency for Southern Germany is 2380 MHz horizontal with 6,5 MHz sound subcarrier, the OE7XSI output is on 10450 MHz vertical and only 1 Watt rf power distributed to several directions. Receiving tests in the Black Forest (Germany) were successful with only 60 cm dish and a modified LNB. One detriment is, that working via the phone input at 144,525 MHz is blocked from time to time by the Valluga FM-phone repeater at 145.687 MHz.

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Reutlingen ATV Repeater DB0RTA

Guenter, DL9SA, explained efforts to change DB0RTA to digital ATV with SR-modules and a Siemens SBS control unit. DATV output will be on 1291 MHz horizontal using a slot antenna. The expected donations from users did not arrive, and another issue of discussions is the output bandwidth dependent of symbol rate and video quality.

Unique Test Pattern Generator

Paul, DL9PX, presented his "Home-Media-Player", fed with digital image files from an SD card. It is powered by a mains adapter or a 12 V battery. Most beneficial is its feature to start a stored image sequence automatically after a power break. But there is also a disadvantage for only 25 Euro (retailer Pollin): the aspect ratio is not correct, but one could cope with it by pre-processing the image files. Hint: Another version traded by ELV (42 Euro) has no auto start option after a power break!

Small talk

Every newcomer visiting such a meeting has the option to ask questions or to overhear expert talks, and also the attached flea market draw ample reception. DH6MAV brought some log-per TV yagi antennas which found consumers very quickly. In vision of upcoming TV digitalization in this area there is a need of high gain, vertical polarized and wide bandwidth antennas. Rolf, DL6SL, in Ulm was able to receive the Wendelstein mountain DVB-T transmitter over a distance of 170 km.



Gabriel, DG7MBD, wanted for more activity on the Tegelberg repeater DB0PFR, as the standard users are always the same. But the question is, how many spectators are watching without a word? Maybe some of them can get active operators. Some wishes occurred for more construction suggestions in the TV-AMATEUR magazine, but who will develop and write it? A member magazine needs input and some willingness for activity.

New amateur radio repeaters at commercially used sites have to pay up to 10000 Euro for a supplemented station declaration - this is reason enough to maintain the older amateur installations - above all with activity.

Author: Klaus Welter, DH6MAV



NEW TECHNICIAN CLASS BOOK INCLUDES AUDIO CD

Gordon West, WB6NOA, announces the 6th Edition Technician Class license preparation book for the new question pool released July 1, 2006. The 212 page book also includes a free audio CD on VHF and UHF propagation.

"The included audio CD creates excitement in our students preparing to earn their new Tech license," comments West.

"This new book for the Element 2 Technician Class covers all of the new 392 question pool which was totally overhauled to bring in current relevant questions and answers, written at intermediate school levels," comments Pete Trotter, KB9SMG, the book publisher.

West's new book with included hour long CD, has reorganized the entire question pool for "subject group" learning techniques. "Students and instructors won't need to skip around in this book. We have grouped together fifteen topic areas which will logically teach the excitement of amateur radio." adds West, 2006 recipient of the Dayton Hamvention™ Ham-of-the-Year award, and 2006 QCWA Presidential award.

This fully illustrated book includes over 150 ham radio websites, highlighted key words for day-before-test preparation, multiple frequency charts, and fun "ham hints" featuring Professor Elmer.

"Young students will appreciate all of the contact information Professor Elmer presents in a rather humorous manner-with some very cool websites including many from the American Radio Relay League," adds West.

Included with the book is an ARRL membership signup application, too. Inside the book is also a free trial magazine subscription for "CQ", an ICOM America equipment discount valid on successful test passing and course completion, plus a free offer for a graduation certificate and multiple ham band color radio charts.

"This book is ideal for home study because West gives out his phone number multiple times to encourage home-study students to call me with their progress, questions, and where to find a local examination team," comments Larry Pollock, NB5X, with the W5YI ham instructor program. He indicates the book will be sold by dealers and distributors for under \$19 which includes the free audio CD.

The book is published by Master Publishing, edited by Peter Trotter, KB9SMG, and written by Gordon West, WB6NOA, and available at (800) 669 9594. The audio CD is recorded by both West and world famous six meter DXer Ken Neubeck, WB2AMU.

www.MasterPublishing.com

Payment for Technical Articles

ATVQ will pay for certain articles that it publishes. I will outline the policy here, but it will be subject to change as needed to make sure that ATVQ continues to be an ongoing publication. ATVQ will pay \$25.00 for technical articles that are published and are a minimum of 2 pages. While this is not a great amount, I hope it will encourage more technical type articles to be written. Exceptions will be articles that are written by a manufacturer/seller of equipment that is being written about. While I do not want to discourage this type of article, the article itself is an advertisement of the product. Articles from clubs will be encouraged, and I would expect they would like to share their information with the ATVQ readership. Information gathered from the Internet will not be paid for and is mostly small filler items.

Ideas

Do you have an idea for an article that you've said to yourself that you wanted to write, but never did. Feel free to check with us to see if it is of interest, or write and send it in. No guarantees that it will get published, but if you don't try, you will never know. I'll be looking to see what you can do!

Preferred method of receiving articles is from **Microsoft Word**, however **Wordperfect** is OK too. Next preference would be **ASCII text**, followed by **typewritten** or **hand written** (clearly). Diagrams or pictures (B&W or Color) can be sent in hard copy, or if you scan them in, save to PCX or JPG formats (actually I can read about anything). If you send a computer disk, make sure it is PC (not MAC) format.

When sending in articles in Microsoft Word, please SAVE with FASTSAVE OFF and save in Word 6 format. Also, articles written in any word processor, consider what will happen when it is re-formatted to fit the style that I might put it in. An example would be setting up tables or adding figures into the article. They can be very hard to strip out. If possible, put the tables, figures, each in a file by itself. This will help me to be able to import into the magazine format.

Articles can be sent to:
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or to our email address: atvq@hampubs.com
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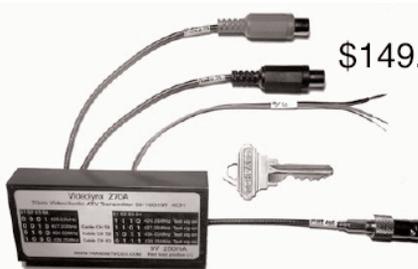
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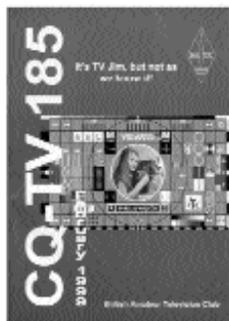
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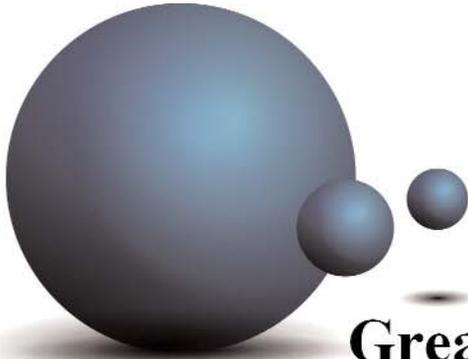
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1 Vp-p 75 Ω
Auto White Balance
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Electronic Shutter - 1/60-1/1000,000 Sec
Lens - C/CS Mount - zoom 6-15 mm - f1.4
Power - 12V±10%DC - 100 ma.
Small size - 40x40x54mm



Weatherproof Color Camera - DV-262CW



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NTSC
420 Line
1.0 Lux
1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
6.0 mm - F1.2 lens
Power - 12V±10%DC - 100 ma.
Small size - 25x25 mm



Minature Pinhole Color Camera

Color CCTV Camera - DV-3225CP1

Sharp 1/3" CCD
NTSC
420 Line
1.0 Lux
1 Vp-p 75 Ω
Auto White Balance
S/N Ratio - More than 46 db
Electronic Shutter - 1/50-1/100,000 Sec
3.7 mm cone pinhole lens
Power - 12V±10%DC - 100 ma.
Small size - 25x25 mm



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