



Next Meeting, Friday 5th September Doors Open 7.30pm

Ern Rose Memorial Pavilion, Seaver Grove, Reservoir



Pictured is an RF-PRO-1B Active Magnetic Loop Antenna

These receiving loops are super sensitive and super quiet, covering 50 kHz to 30 MHz

They are just one meter in diameter and perform incredibly well.

Come along next meeting to see one demonstrated and see what you can hear with one of these.

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NOTICE TO MEMBERS WANSARC CHRISTMAS DINNER

Thursday Night, 7pm Start, 27th November

- NMIT St. Georges Restaurant is closing for the year on Thursday 27th November. If the club were to book in December, the cost increases dramatically. We only received notice of this recently from NMIT.
- In light of this development the new date for the club Christmas Dinner is,

Thursday Night, 7pm Start, 27th November

- I ask that all members to respond to me directly A.S.A.P WITH NUMBERS ONLY.

You can advise your numbers at the September general meeting on Friday 5th September.
OR email Mick VK3CH direct at vk3ch@wia.org.au with your name and number of guests.

ALL OTHER DETAILS REMAIN UNCHANGED, AS LISTED BELOW

- A three course meal at \$33 a head will be offered, however the club Committee has agreed to subsidize the cost of this meal by \$5 per head, which includes partners of those attending, as was done last year. In other words, a three course meal will cost \$28 per head, not \$33 per head. One of the menu choices will be a Turkey & Vegetable dinner, meals served alternately as last year.
- No payment needs to be made at this stage.
A Menu will be provided by NMIT in September and will be forwarded to you; there will be multiple choices, just like last year.
- The club needs at least 30 members and partners to attend on the night to guarantee the booking and as such members are asked to respond to me directly with confirmation of numbers by the September General Meeting on Friday 5th September.

~ Mick VK3CH, Christmas Dinner Coordinator

News

LAST MONTHS MEETING

Last month was a quick meeting with organising of end of year functions sorted out, both the Christmas Dinner and Family Day. A reminder that membership dues are payable, if you have not already done so and thanks to those who have. Payment details are available on club website <http://www.wansarc.org.au/payments.htm>

Clubs certificate for John Moyle Field Day arrived in the mail.



THINK BEFORE YOU LICK

Think before you lick - Australia Post is sending what could be the country's smallest utility bill.

Canberra resident Grant Battersby received a \$2.20 "underpaid mail tax invoice" after posting a birthday card to Adelaide that was "not extravagantly large".

"It was delivered. But then I received a letter with a bill attached noting that it was a non-standard item."

Mr Battersby went to the Kingston post office and paid the \$2.20, which comprised a \$1.50 handling charge and an extra 70¢ for postage. "I think the most significant thing was, I said I had sent many cards of this size, and he said words to the effect of 'Yes, we haven't policed this very rigorously in the past but we will be in the future'."

Users of broadband site Whirlpool and online marketplace eBay have also complained that the underpaid mail tax notice pushes the envelope. 'Shutupuluvit' wrote: "The principle of blindly paying any request for payment without prior agreement, proof or legal obligation to does not sit well with me."

But it seems Australia Post has relegated underpaid mail to the dead letter office.

"The incidence of underpaid mail is minor," a spokeswoman said. "Australia Post has a well established process for detecting underpayment of mail items. Depending on the circumstances, the amount owing is sought from the sender or receiver of the mail item. A small administration fee applies for underpaid mail."

Under Australia Post's terms and conditions, if a sender regularly lodges underpaid articles or if Australia Post believes the item was underpaid on purpose, it can also hold onto the mail until the sender or addressee pays the correct amount and "any service fee".

As mail volumes decline, taxpayer-owned Australia Post is undergoing serious changes, such as stamp price rises, job cuts, less frequent delivery of business mail, and a split into two.

The spokeswoman declined to answer questions including whether \$2.20 was the smallest amount Australia Post is demanding from customers and how much money it expects to retrieve.

But it would need 2.18 million people coughing up \$2.20 each to pay for one year's salary of Australia Post boss Ahmed Fahour who received \$4.8 million last financial year, making him Australia's highest-paid public servant. ~Internet

SHEPPARTON HAMFEST - SEPTEMBER 14TH

S.A.D.A.R.C. Hamfest will be held on Sunday 14th September at St Augustines Hall, Orr Street Shepparton. This is our usual venue and the doors will open at 10:00am for the public. 8:00am for the Traders. A very reasonable \$5.00 door entry fee as per normal. And can be purchased before 10:00am for the door line up. There will be plenty quality food at good prices. With plenty of comfortable seating with tables for a chat/QSO. As well as a raffle and door prizes on the day. The usual vendors will all be there, plus many other tables of pre loved equipment, with about 30 tables all up in total.

I'VE BEEN EVERYWHERE

I have been in many places, but I've never been in Cahoots. Apparently, you can't go alone.

You have to be in Cahoots with someone.

I've also never been in Cognito. I hear no one recognizes you there.

I have been in tolerable, but they couldn't put up with me there.

I have, however, been in Sane. They don't have an airport; You have to be driven there. I have made several trips there, thanks to my friends, family and work.

I have been in Conclusions, but you have to jump, and I'm not too much on physical activity anymore.

I have also been in Doubt. That is a sad place to go, and I try not to visit there too often.

I've been in Flexible, but only when it was very important to stand firm.

Sometimes I'm in Capable, and I go there more often as I'm getting older.

One of my favourite places to be is in Suspense! It really gets the adrenalin flowing and pumps up the old heart!

At my age I need all the stimuli I can get!

I have been in Continent, but I don't remember what country I was in. It's an age thing.

~Anon A Moose

FOUNDATION LICENCE - WEEKEND COURSES

Next course October 11 & 12

Courses are held at the Amateur Radio Victoria office 40G Victory Blvd, Ashburton. The study and operational practice guide book for the Foundation Licence is available as a mail order for \$26 from Amateur Radio Victoria on-line shop

To enrol contact Barry Robinson VK3PV foundation@amateurradio.com.au or 0428 516 001

M.A.R.T.G. Hamfest

Sunday 28th September



IKCA social club rooms

Start time: 10:00am

Cnr Milleara Rd & Keilor Park Drive, East Keilor

Entrance \$6.00 Tables \$20.00

Contact Guy to reserve your table guy@vk3guy.info

There will be the usual egg & bacon, snags etc.

Raffle prizes drawn hourly from 11:00am to 1:00pm
Simplex 145.675 FM or Echo Link Node: VK3XCO-L

Annual Worldwide Amateur Radio Television QSO Party 2014

THE PARTY INVITATION

The fourth annual worldwide ATV QSO Party was held over the last weekend of August, Friday night and Saturday afternoon. Friday night Melbourne time was for local stations to get on air, with Saturday afternoon for local and international stations linked up.

MAN WITH A PLAN

Planning for the ATV QSO Party by Mick, VK3CH started two months prior, with a new work location to use. At home Mick can either send ATV video from the shack, or from the back yard, via cabling running from the shack to the rear yard. All this was still in place from last year, so not much to do, other than prove that it was all still good, nothing eaten by the wildlife... Work however was a new blank canvas. Compared to our previous work location, we were now situated in a prime VHF-UHF area. With line of sight to the commercial TV towers at Mount Dandenong, needing only a basic TV antenna to get both commercials and VK3RTV, the expectation that getting a reliable signal into VK3RTV was high. Google Earth gave a plot of the distance from work QTH to VK3RTV site as 34.3 km. Google Earth reports our work as 110 meters above sea level. Add the building height of 8 meters and 2 meters of mast, the ATV antennae are 120 meters above sea level. At 137 metres above sea level, Mt Cooper in Bundoora Park is the highest point in the metropolitan area. With a clear view to Mount Dandenong, working out the TX beam direction was no issue, knowing where VK3RTV is located. With a full voice station at work, on MF-HF-VHF-UHF already established, ATV was the last mode to add to the work "shack".

ADD ANOTHER ANTENNA TO THE COLLECTION... BETTER MAKE THAT TWO...

ATV receive had already been in place in March, with a perfect picture seen on VK3RTV, regardless of weather conditions. Late June the roof work of running coax to the roof and down the inside wall cavity to the office "shack" was done. A spare 33 element loop yagi was erected with 20 meters of 9913 coax via the roof down to the office ATV transmitter. Initial tests into VK3RTV were excellent with only Level 3 power required to hold either VK3RTV1 or VK3RTV2 perfectly. A power level up to 15 is available with the SR Systems units. Given that the beam for VK3RTV2 is beaming for input towards the Yarra Valley area, this is a great result. On VK3RTV2, on just 1.45 watts, a perfect locked on picture was obtained, the transmitter drawing only 2.2 amps total current. VSWR on the beam on either 1255MHz (VK3RTV1) or 1276MHz (VK3RTV2) was 1 : 1.1 for both, only about 1% loss, not bad. Also when talking on 2 meters at 50 watts, close to the ATV beam, had no adverse QRM, nothing happened to picture when talking.



ATV 23cm TX Loop beam pointing to VK3RTV, near Mount Dandenong, in the distance ↑

LOCATION, LOCATION, LOCATION...

Once the ATV transmitter proven OK, it was time to decide what sort of material to TX on the day.

The office is not that interesting for ATV video, so video and audio cable was run from the office to downstairs near the roller door. As voice amateur station is connected for remote internet access via Remote Rig, a cross-over CAT5 cable was also run to downstairs, so that the IC-7100 radio control head could be used downstairs where the camera was situated, to allow voice liaison during the ATV linkup. This saves having Remote Rig tie up the internet modem when just being used within the building.

To power the radio via Remote Rig when downstairs, a DC cable was also run from the office so 13.8 volts was available, this saves mucking about with a separate 12 volt plug pack power supply downstairs.

To also be able to watch other stations and to check our transmitted content 'live' a 75Ω TV coaxial lead was also run downstairs. At home a twin cable is also used to enable the ATV transmitter or power it down, without the need to run up and down the stairs.

This facility was also wanted at work so a twin cable for this function was also run as well.

All the cabling was put in ducts and then ran conduit down the warehouse wall to near the front roller door.

Of course video can be done from the office if the camera is used there, if it was required.



Spare ATV 23cm TX & 70cm RX antennae and masts hanging from the roof ↑

Just a small domestic TV antenna required for VK3RTV since the site VK3RTV antenna improvements ↓



Compared to the park, we now had mains power, shelter, all our tools, spare cables, etc, all at our disposal.

Just turn up, open the door, site the camera, plug it in, go upstairs and switch it all on, too easy... makes future years easy...

The weather can do what it likes; just move the camera further inside if it gets nasty... But on good days BBQ can go outside.

The fridge, hot / cold water, microwave oven, kettle, landline telephone, work furniture and tables also add to the comfort factor.

I wonder if justified calling ATV from work a "portable" station (hi).

ACMA ATV SHARED 70cm SPECTRUM NEWS

The Australian Communications and Media Authority, as part of the re-planning activities for the 400 MHz band, has made 442.5 - 444 MHz and 446.5 - 448 MHz temporarily available to the Land Mobile Service.

To enable an orderly re-planning of that spectrum, it is anticipated that temporary spectrum allocations will be needed until the end of 2015. Any Land Mobile Service allocation will be on a secondary basis, and equal to the Amateur Service which is also secondary on that band. The ACMA wants frequency coordination to occur before any new user on a frequency.

All in all no one really knows what effect this may have on ATV Repeater outputs. Given that there are only active installations in Hobart, Port Pirie, Brisbane and Melbourne there may be a work around with sensible frequency planning.

Bringing the home ATV TX unit to work meant messing up the shack. So it was time to make up a dedicated work ATV TX. A portable ATV unit was already used for the park, but required 24 volts. So it was converted to 12 volts. This was done by removing the exiting 24 volt PA and replacing it with a 12 volt PA. All this work was done in July. This removed the need to use an inverter, only to feed a 24 volt switch mode supply, too much loss converting voltages. Now everything is powered off 12 volts, just what you need for portable work.

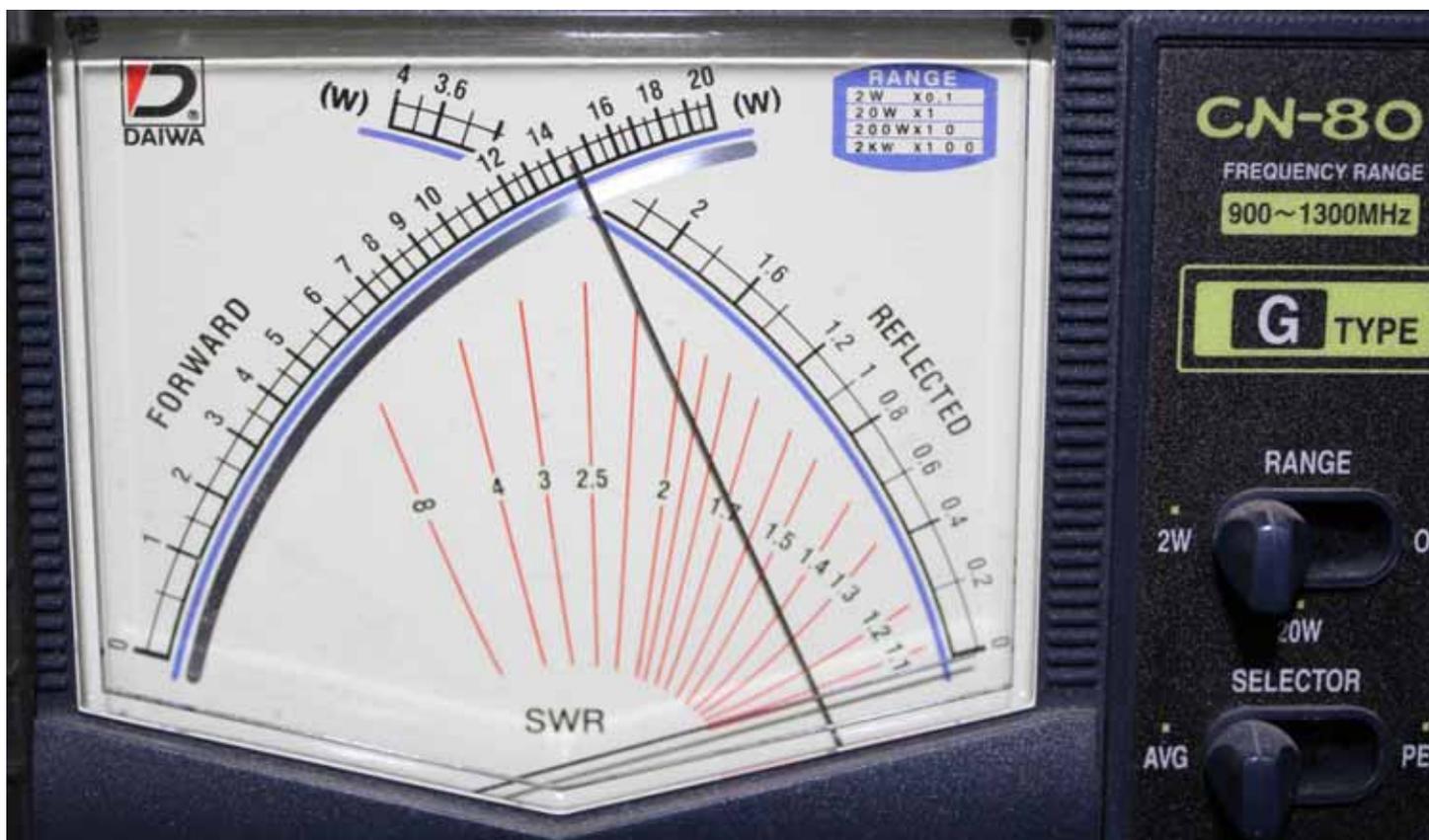


Replacement 12 volt 23cm 20 watt PA, made by DG0VE from Germany, mounted on a heatsink ↑

It was good not being under pressure to have it finished in time, as the mains ATV unit could always be brought from home to use. So in future when portable, all can be off the battery without the additional current losses and QRM (on 40 meters) from an inverter. But changing the PA was only part of it.

While doing that all, the extra features of the home unit were added. Such as adding a VU meter and driving amp unit for it. Adding the relay enabling circuitry – to be remotely powered on or off from a distance was done.

Being a portable DC unit, reverse polarity relay protection was also added for safety. A digital current meter was also put in. Seeing current draw is as good as having a PA power watt meter, as you can readily estimate the RF watts going to the antenna.



Just 1.45 Watts into VK3RTV2 for a steady picture, QRP ATV, with low VSWR, at work QTH ↑

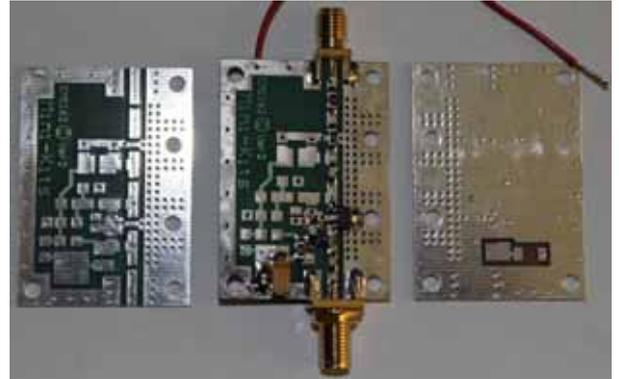
Note the range switch on 2W, thus 2 watts full scale deflection, VK3RTV1 (from work) can be held with just 100 milliwatt

'MURPHY' DECIDED I'M HAVING TOO MUCH FUN

An old camera gathering dust was found, a Canon MV530i that uses tape to record, purchased back in 2003. To save swapping cameras between home and work, it was put into service for the home shack. It used to power off after 10 minutes. It is just used to capture video, not record it to tape. Removing the tape allows the camera to remain on without shutdown. While testing this one day, no video was seen on VK3RTV. Nothing could bring up video or sound. The unit was taken to work, where it was confirmed, just a few weeks before the ATV Party, the final PA had died. This was one of the units that is notorious for coping final transistor failure. So it was swapped over from 24 volt to a 12 volt PA, like the portable 'work' transmitter that was upgraded with the Mitsubishi RA18H1213G 18 Watt RF MosFET amplifier module. This required the inbuilt 24 volt switch-mode supply to be replaced with a 12 volt version. After the "surgery" the transmitter was alive again. However the PA is designed for 8 mW drive, but the SR-System exciter outputs 2mW at full power. Currently the final maximum output power from the final PA was only 2.2 watts. Just in case more power was needed in future a driver small current RF amplifier was added.

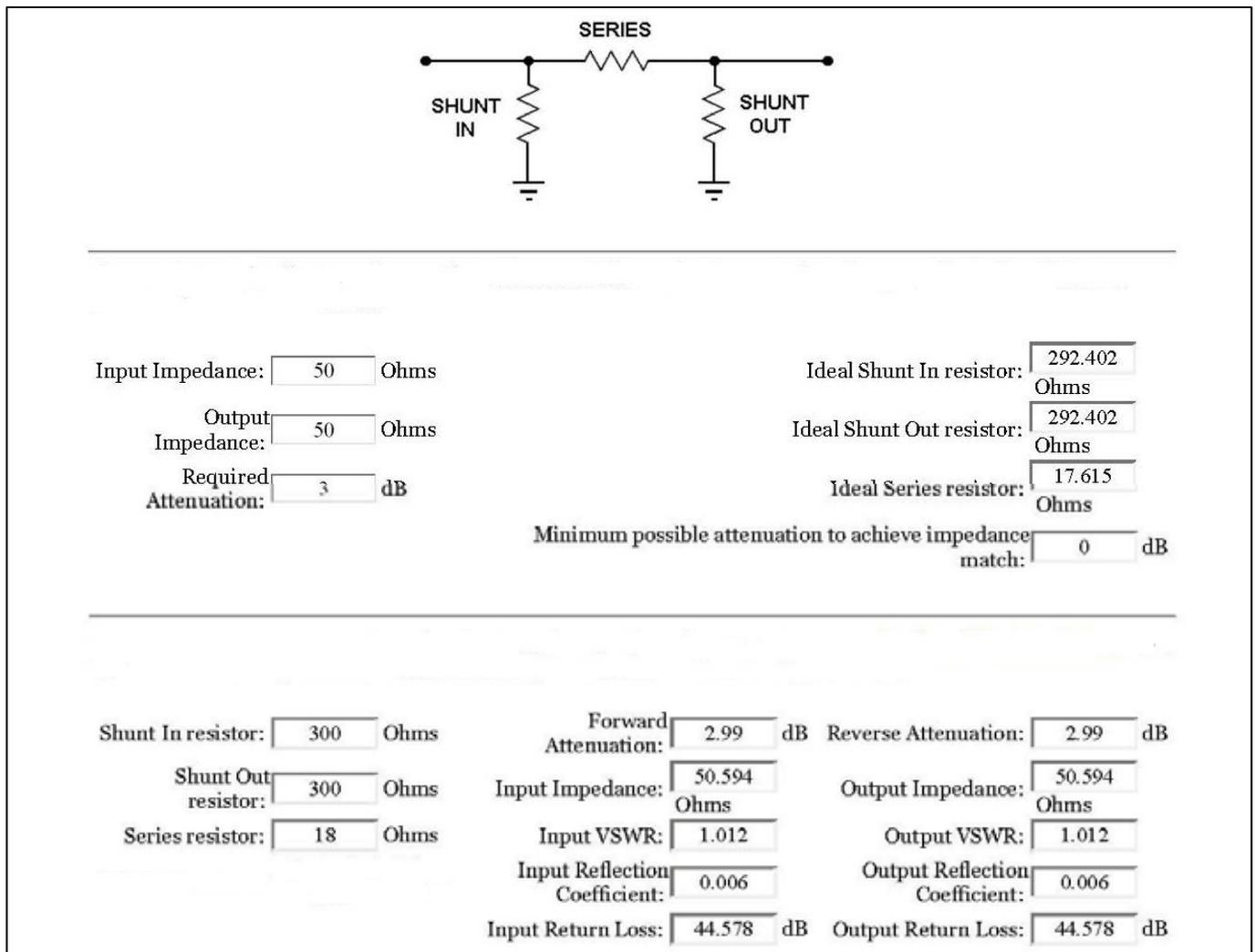
MINIKITS 'PHA1' DRIVER

Minikits came to the rescue with a PHA1 which has a very high Third Order Intercept Point. This means that is a lot more linear and capable of higher output power before distortion. Just what is required for Digital Amateur Television. Not wanting to solder SMD parts so close to the ATV Party deadline, for a few dollars more a complete made up board was ordered, arrived in two days, very good service from Mark at Minikits in Adelaide. Check out <http://www.minikits.com.au/> it's updated a lot. Once the PHA1 was installed an additional 3dB was added to obtain the correct drive levels to the final PA. Peter Cossins, VK3BFG, kindly offered to put it through his spectrum analyser and with current not exceeding 5 amps, the signal was clean and within spec.



Minikits PHA1 driver board in centre with spare general purpose boards, which are used as attenuators by placing resistors in a "T" pad circuit →

After the PHA1 was added, 3dB of 'cut' was required, Peter Cossins took out a chart and suggested a shunt of two 300Ω and an 18Ω. Attenuating about 8 milliwatt of power, no damage with bad VSWR likely, shunt calculator on web confirmed the values ↓



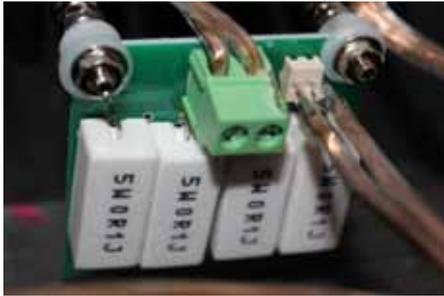
ON SCREEN DISPLAY TEXT

The home unit has a dedicated On Screen Display (OSD) unit that is programmed for text. This needs a PC to alter the text each time. The EMDRC have an OSD unit that has pre-programmed choices of text that can be selected on the fly. Also Morse sending for VK3RTV diagnostics and signal quality reports is also inbuilt, programmed with the VK3RTV touch tones. One of these units was also included and built into the portable unit at work. Many Melbourne ATV hams are using these now. It can output DTMF tones to control VK3RTV, display text, both static or timed in a loop, display temperature and power levels. Mini attenuators were also found, on Minikits website, so the 3dB attenuation board was removed and a 2dB pad inserted instead. Now the transmitter, at full power, on 1255MHz draws 4.5 Amps and on 1276MHz, draws 5.4 Amps, which is now considered safe. The house ATV transmitter was now "seniors' moment" proof...!



On Screen Display Board, An EMDRC project by Ralph VK3LL and Damian VK3KQ ↑

Current sense board ↓



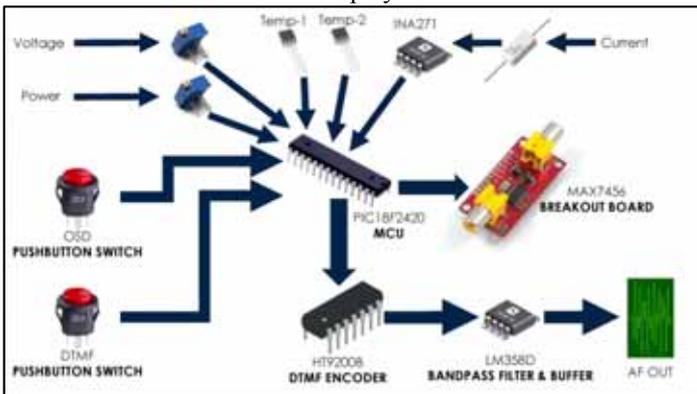
Temperature sensor device in the glue ↓



Mini 2 dB attenuator pad ↓



On Screen Display Unit



What the OSD unit can do

OSD CAPABILITIES

- ▶ Current monitoring (0-10A or 0-15A)
- ▶ Voltage monitoring (0-28V)
- ▶ RF-Out Power monitoring (0-50W)
- ▶ PA Temperature & Driver Temperature (°C)
- ▶ DTMF Tone Generation for VK3RTV Menus
- ▶ CW ID Mode (with 2min timer)
- ▶ 9 Standard displays plus one Status display
- ▶ Dual video outputs (one for DATV Tx and one for preview)

FINISHING TOUCHES

An IC-5100 Dstar / FM radio was put into service as well, so both the ATV liaison frequency and another could be monitored. Another VHF/UHF vertical was installed and coax run all the way downstairs and the IC-5100 mounted high up on the wall, with cables run down to a shelf for the microphone and controller front panel. Initial results were bad, with QRM and radio stations breaking through on both receive and under my transmitted audio. Moving the control head (but more importantly) the unshielded cables to it, away from other mains cables near the ducting on the wall, sorted out all the problems completely.

Now, with having the IC-7100 head taken downstairs as required and plugged into the CAT7 network cable, then both radios can be used, not just during the ATV QSO, but on HF with IC-7100 and "watching" two spots on either VHF and /or UHF in real time. Perfect for cross-banding QSO's as well...

CATEGORY 7 NETWORKING CABLE ~ THE ULTIMATE IN SHIELDING ~ QRM KILLER

CAT7 network cable has each pair shielded then the four pairs all shielded. This cable is for 10 Gigabit networking.

Using CAT7 stops the ticking with the IC-7100 or IC-5100 in its tracks.

Saves having to use the overkill solution of Remote Rig over 10 meters of coax, but a spare crossover cable was run anyway.

Cat 7 cable showing each shielded pair ↓

The specs on CAT7 cable say; *Category 7 cable are backward compatible with Class D / Category 5e and Class E/Category 6.*

Class F features even stricter specifications for crosstalk and system noise than Class E. To achieve this, shielding has been added for individual wire pairs and the cable as a whole. Besides the shield, the twisting of the pairs and number of turns per unit length increases RF shielding and protects from crosstalk.

The Category 7 cable standard has been created to allow 10 Gigabit Ethernet over 100 m of copper cabling. The cable contains four twisted copper wire pairs, just like the earlier standards. Category 7 cable can be terminated either with 8P8C compatible GG45 electrical connectors which incorporate the 8P8C standard or with TERA connectors. When combined with GG45 or TERA connectors, Category 7 cable is rated for transmission frequencies of up to 600 MHz.



LAST MINUTE JOBS

The last jobs were getting the BBQ gear ready, filling LPG gas bottles and tidying up.

The rear yard was looking a bit rough, as all can be seen on ATV, it was time to get it ready, not just for ATV, but summer as well.

New wood chips delivered ↓

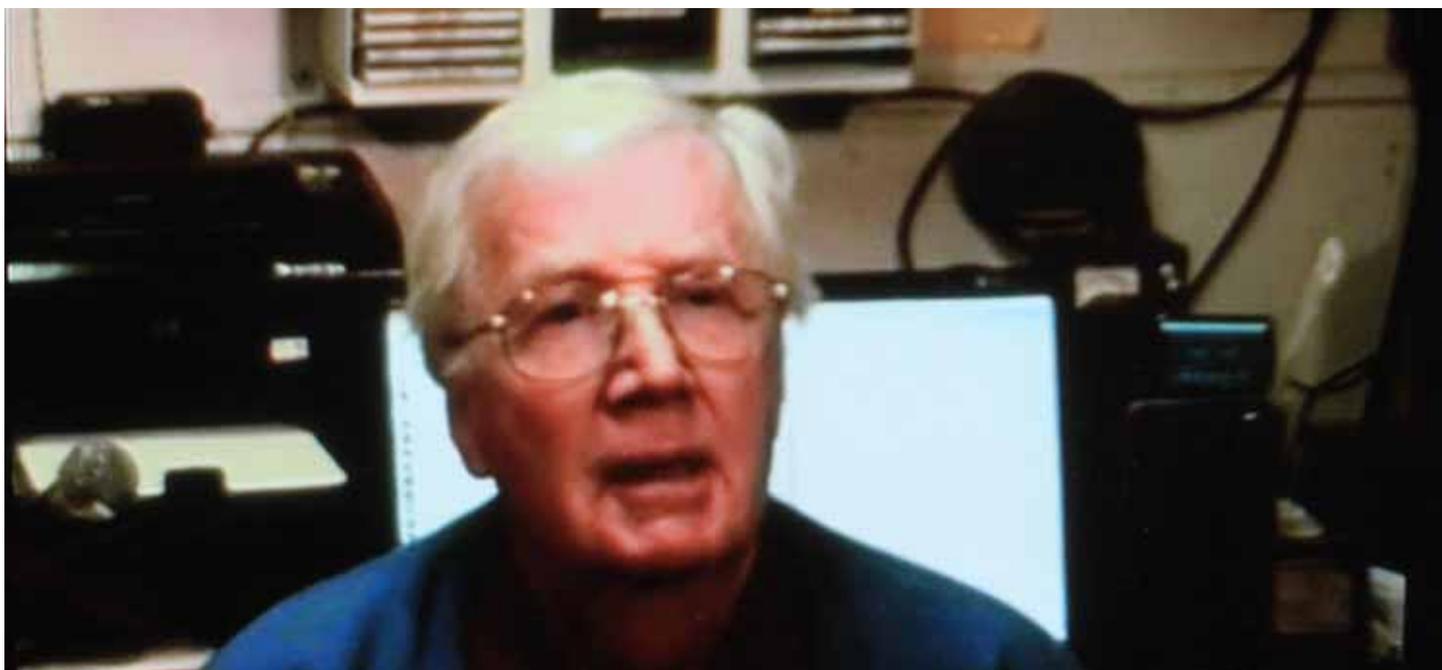
Job nearly done ↓

Yard tidy and ready ↓



THE ATV WEEKEND SHOW ~ FRIDAY EVENING

One of the main objectives is for local and overseas amateurs to broadcast live video segments about their station setups and what they are currently working on. The ATV QSO party is broadcast via the Melbourne-Geelong VK3RTV digital ATV repeater, and can also be viewed on the British Amateur Television Club web site live video streamer at www.batc.tv and also www.vk3rtv.com. On Friday night, only VK stations broadcast, this year there were internet links to the new digital TV repeater VK5RDC at Port Pirie, and VK4RKC in Brisbane. ATV hams not within repeater range or a repeater were able to linkup using Skype via the internet to master controller Peter VK3BFG. Skype is used for Interstate and International connections. However Skype is currently grandfathering out older versions and the new version does not support import video from USB Dongles such as EzCap. These are used to take the output video as received from the ATV Repeater and send it to the remote anchor station. Fortunately Peter VK3BFG found a temporary work around, but it depended on the administrators of Skype and their timetable.



Peter Cossins, VK3BFG, with the opening address for the Friday night ATV Party QSO ↑

Pictures of the Friday evening stations that logged in, just photographed in front of the TV screen



Mick VK3CH, in the backyard, in front of the BBQ's and behind the camera ↑

Mick's Friday night live telecast dinner, was smoked BBQ marinated honey/garlic/soy lamb ribs, washed down with Coopers Ale...

Friday night was a 'round robin' show and tell, like previous years.

The topics and projects were incredibly diverse, with most undertaking either vast improvements or major new projects underway. EMDRC have a whole ATV studio and fantastic tower with all the beams on it.

John VK3DQ has a huge tower under construction. Peter VK3BFG showed a 200 watt PA being built.

Jack VK3WW had a very amusing pre-produced video with his persona visiting him live on air, brilliant video indeed...

The usual BBQ teasing between Mick VK3CH and John VK3DQ was upheld, Micks dinner looked better than what John displayed.

The main self criticism of the VK3CH setup is of course lighting. Better "white" lighting will need to be installed for next year.

The rear yard was not a big job, as the cables and radios were all installed in previous years, just switch it all on and away you go...

The switching, both local and remote, works well. The biggest challenge is finding relevant content to show.

Those that pre-recorded video of their projects were well produced professional productions.

It certainly shows the amateur radio does not have to mean "amateurish", certainly not on VK3RTV.

The stations spoke for four rounds and then it was time to get some sleep for the next day. Stations in the USA watched and came up after 1am their local time, keen indeed...

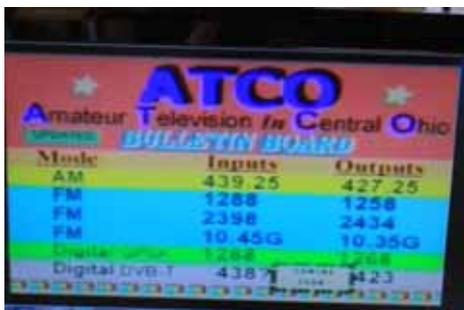
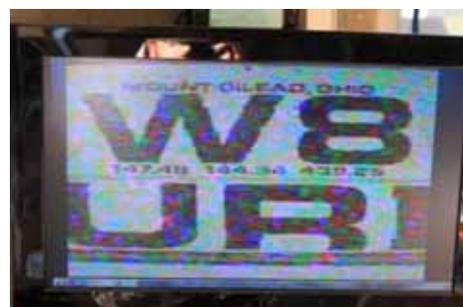
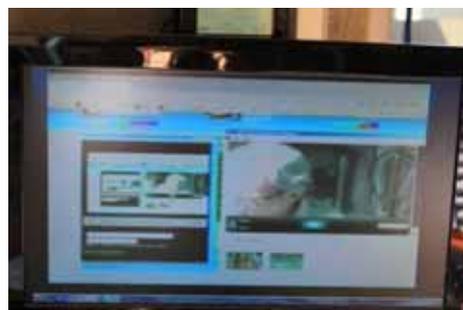
SATURDAY MORNING

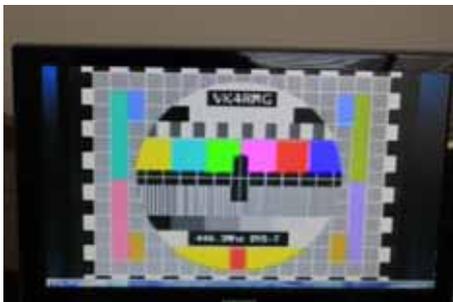
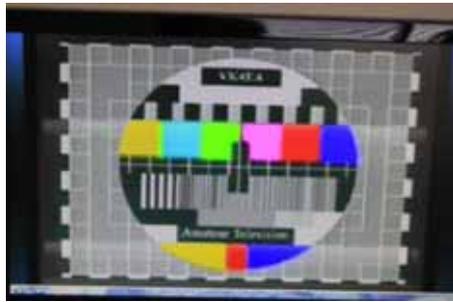
Saturday morning commenced with local stations before the USA came on. The weather was a perfect spring day.

On the Saturday, there were four international net controllers - Peter VK3BFG, Don KE6BXT, Art WR8DMC and Noel G8GTZ.

Overseas ATV repeaters linked to VK3RTV including W6ATN and WR8ATV in the USA and GB3HV and GB3SQ and GB3KM in England, as well as other International stations via Skye and the internet.

VK ATV station screen shots, taken with camera from the TV screen, the 10am session...





SATURDAY AFTERNOON

The 1pm ATV session... Southern California, USA, was due to start, but Mick VK3CH, received a phone call summing him to not one, but two family medical emergencies, which cut the day short and unfortunately prevented recording the afternoon ATV sessions. Hopefully as in previous years the recordings will be put up to youtube. The only captured stations here...



SATURDAY EVENING

Stations from England were patched in via Skype by Peter VK3BFG, screen shots below...



Putting on three sessions of ATV shows across different modes, time zones and local, interstate and international liaison, no lazy job. An incredible diverse range of discussions on ATV and amateur radio projects were seen, including stuff not to do with ham radio!!! As usual Peter VK3BFG managed to put up a professional run show under demanding conditions.

Despite this the promise of further improvements is always strived for, many stations have made great improvements involving much experimentation, patience, trial and error, and of course expenditure of money...

From experimental beginnings four years ago to now, the ATV Party is now a recognised annual event watched across VK, GB, W and Europe and anywhere anyone uses the BATV site or vk3rtv.com

In closing, it's only when you get on air, no matter what preparation you undertake, on the day of transmission, it's only then you discovered either what is lacking, or improvements to be made...

For Mick VK3CH, it is, better "white" lighting, improved audio, a separate microphone on a lead or wireless to be researched. Per reordered content is also another option as the time gets tight on the actual day of going live to air.

It is impressive the time and trouble stations go to both getting on air, often in new locations, finding interesting content to put to air. It's getting to a point, how to top what you have done in previous years.

So that's always next year's project.

Many thanks to Peter Cossins, VK3BFG, for all his efforts and expertise in another excellent ATV QSO Party.

~Mick VK3CH

D-STAR QSO PARTY 2014

Invitation to the Biggest D-STAR QSO PARTY!
Talk to the world by connecting through D-STAR repeaters around the globe.

The Party Runs From:

SEPTEMBER 19 (Fri.) ▶ 21 (Sun.)
00:00 (UTC) 24:00 (UTC)

<http://www.icom.co.jp/d-starparty2014/global/>

WANSARC NET
Tuesday Night, 8pm Check In
VK3AWS
146.450MHz FM Simplex

WANSARC VK3AWS

PRESIDENT: Frank Petrowitz
SECRETARY: John Karr

VK3OP
VK3FMPB

vk3op@hotmail.com
johnkarr@bigpond.net.au

All correspondence to be addressed to the **SECRETARY: PO Box 336, RESERVOIR 3073**

WANSARC CLUB PROFILE

History

The Western and Northern Suburbs Amateur Radio Club (**WANSARC**) was first formed in 1969 and since then has served the needs and interests of amateur radio operators, short wave listeners and those interested in hobby radio and electronics. The club is not gender specific, having both female and male members. Members come from all walks of life with a mix of experience, young and mature, novice and technical. The most important aspect of the club is the willingness of all members to share their knowledge for the benefit of others. Members mainly reside in the west and north of Melbourne; however membership is encouraged from all interested. **WANSARC** is an affiliated club of **The Wireless Institute of Australia**.

Meetings

Meetings held at the **Ern Rose Memorial Pavilion, SEAVER GROVE, RESERVOIR** (Melway Map 18 D5) on the **1st Friday of each month** (excluding January) commencing at **7.30pm local time**. Talk in on **146.450MHz FM**—call club station **VK3AWS**.

Benefits

Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts, excellent club facilities and environment plus an informative monthly newsletter for members to post articles, news, classifieds for all radio, test equipment, etc, featuring Amateur Radio news from WANSARC, ARV, WIA, ACMA, Melbourne Clubs, VK and Worldwide.

Club Nets

146.450MHz FM each Tuesday evening commencing **8.00pm local time**. Net Control Station - **VK3AWS**

Website: www.wansarc.org.au

Postal: **WANSARC PO Box 336 RESERVOIR 3073**

A proud tradition of supporting hobby radio and electronics enthusiasts since 1969

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