

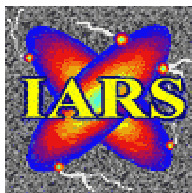
THE PROPAGATOR.

Club Call VK2AMW

VOLUME 03/06 ISSUE 2nd December 2003. PRINTED BI MONTHLY
PRICELESS.

Meetings held second Tuesday of each month (except January).
S.E.S building Montague Street Nth Wollongong. Starting at 7:30pm.
Official newsletter of the ILLAWARRA AMATEUR RADIO SOCIETY INC.
PO Box 1838 WOLLONGONG 2500.

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Editor Dave VK2TDN
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Well, another year is drawing to a close as we all start thinking about xmas parties and such. It is also ending my first year as a member of this club and it is one I am proud to be a part of. In the last 12 months I have got to know a lot of helpful and friendly fellow amateurs. It is great to hear an active repeater system with plenty of operators willing to help out others with various radio queries. As I occasionally scan through the other Sydney area repeaters, many of which sit quiet for hours on end, its always reassuring to return to 146.850 and be almost guaranteed a response to a call out on the repeater.

In this coming new year I have a few plans to try and create some construction and experimentation activity on some higher frequency bands. Namely 1296MHz (23cm) and 10GHz (3 cm). I would really like to see a bit more of the 'old' amateur style return with more construction and the thrill of communicating on transceivers and addons that have been homebrewed. Its up to us older, interpret that as *experienced*, (smile) amateurs to continue to pass on our help and knowledge to the new ones amongst us. I like Lyle, VK2ALU 's definition of amateur radio.....
' its 99% experimentation and 1% communication'.

The opening up of the HF bands to the novice and limited licence holders from the 1st of January will lead to a better population of those lower frequencies and this will also hopefully lead to a few HF band projects in up and coming newsletter issues.
What a nice xmas pressie, thanks ACA.

It was great to see a large turnout for the club auction sale at the November meeting and it was a good chance to put a face to a few callsigns. Lots of fun was had bidding for all sorts of items and Simon VK2XQX 's 'Hammerfall' was definitely fast and decisive, haha.



COMING EVENTS.

- 1) December 9th, meeting Technical Talk by John VK2AAL on " Portable Antennas "
- 2) BBQ at Cataract Dam, 13 or 14 December, so far the vote leans towards Saturday 13th.
- 3) Club Broadcasts will go into recess over Christmas. Last Broadcast for 2003 will be on Tuesday 16 Dec. Broadcasts resume on Tuesday 20 January 2004. Over Christmas we look forward to support of a club "Net" on 2 metres from about 8pm. We will also be trialling operations on 10 metres.
- 4) The Committee are having a break too, next meeting is on Wednesday 21 January 2004.
- 5) THE BIG DAY !!!!!!!
In case you have not heard, 1 January 2004 is the big day. Limited calls will gain access to Unrestricted bandspace. Novice Limited will gain access to Novice bandspace. Keep listening there could well be an interesting "No CW Day Contest" run by the WIA Federal Council.

Our Committee.

President. John Peary VK2JJP 42614762

Vice President. Ted Thrift VK2ARA 42729521

Secretary. Brian Farrar. VK2UBF. Phone, 42672296. vk2ubf@fishinternet.com.au

Treasurer. John Lawer VK2KEJ 42289856

Committee. Brian VK2UBF, Peter VK2HPR, Ned VK2AGV, David VK2EZD

Fund Raising Committee. Peter VK2HPR, Geoff VK2HIC, Brian VK2UBF.

Editor. Dave VK2TDN , e-mail davenn@optusnet.com.au

Publicity. Can u fill this role ? speak to a committee member

Membership secretary. John Bennett VK2AAL 42976065

Repeater Committee. Rob VK2MT Simon VK2XQX. Phil VK2TPH, John VK2AAL

Canteen. TO BE ADVISED.

Web Master. Mike VK2GNV with help from Daniel VK2TAU.

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Members, don't forget, this is YOUR club newsletter. It functions best when we get input from you. Please put your thinking caps on and come up with ideas, articles, projects and news of interest to all of us. Thanks guys ☺

Secretary's report November 2003.

Your club is going from strength to strength. The number of members at the last committee meeting was 87.

Your committee has invested some of our money into the short term money market. This money is SAFE it's invested in a 3 month term with the IMB. This should give a return of about 4 - 5 percent.

I would like to thank all those members who sold art union tickets personally and at shopping centers. It is hoped that at this coming meeting the break down of the amount raised will be known. It is known that it is MORE than the fund raising committee had wanted to raise. The fund raising committee will be disbanding at this coming meeting. The new fund raising committee will be re-formed at the first meeting in the New Year.

So starting thinking of what you could do if you where on this committee. The more money raised by fund raising the less we can have the membership fees and the repeater network will be kept intact.

With the new regulations just around the corner I think it would be a good thing to start a HF net, maybe on say 80 or 40 metres. What do you members think?

At the last meeting on November 11th the 50 or so members that were there most walked away with a great bargain.

The auctioneer Simon VK2XQX did a great job of getting the money out of those that were there. The club still has for sale the **TS520S** with lots of parts to connect to it. So if you would like this COMPLETE station contact any committee member. This station will also be going into AR and hopefully ESR magazines.

The membership snowball should be around \$75 at the December meeting so why not come along it maybe YOU that walks away with this prize. The snowball will keep JACKPOTTING until won. BUT YOU MUST BE PRESENT TO WIN!!!!!!
Your committee is in need of a PUBLICITY OFFICER. Can you help if this role? If so contact any committee member.

Don't forget the club news broadcast every Tuesday evening, except meeting nights, on the Coast link repeater network and also on 3.620. Hope to see you at a meeting soon, or on one of the evening nets, i.e. Slow scan TV net or news net. Both of these nets start at 7:30pm.

Until next time Brian VK2UBF Hon Secretary.

FROUD'S LAW: A SEMICONDUCTOR PROTECTED BY A FAST BLOWING FUSE,
 WILL BLOW FIRST THUS PROTECTING THE FUSE

SOD'S LAW: WHEN SOMETHING DOES GO WRONG, THERE IS SOD ALL
 YOU CAN DO ABOUT IT

The Club Repeaters

VK2RMP	52.650 / 53.650	6m Voice	Maddens Plains Linked 146.85 for Broadcasts
VK2RUW	147.875 / 147.275	2m Voice	Knights Hill (Stand alone)
VK2RBT	146.075 / 146.675	2m Voice	Mt Boyne (VK2RMP & VK2RIS)
VK2RMP	146.250 / 146.850	2m Voice	Maddens Plains (VK2RIS & VK2RBT)
VK2RIS	146.375 / 146.975	2m Voice	Saddleback Mtn. (VK2RBT & VK2RMP)
VK2RUW	433.225 / 438.225	70cm Voice	Knights Hill (VK2RGN, VK2RHR, VK2RGI, VK2RTW)
VK2RMP	433.725 / 438.725	70cm Voice	Maddens Plains
VK2AMW	144.625	Morse Beacon	Sublime Point 10 WPM 1/2 sec Spaces
VK2AMW-1	145.175		APRS Digi Knights Hill (APRS "Wide")
VK2AMW-2	145.175		APRS Digi Mt Boyne (APRS "Wide")
VK2AMW-7	147.575		Packet DigiMt Murray
VK2XGJ	53.100		BBS/SatGate Dapto
VK2XGJ	147.575		BBS/SatGate Dapto
VK2XGJ	440.050		BBS/SatGate Dapto

This is a wonderful set of repeater and beacon gear that our club has. Do all you can to help your club with fund raising to keep it on the air. It takes a lot in time and money effort to keep the system running without too many hiccups and many thanks goes to Rob, VK2MT and his helpers Simon VK2XQX, Phil VK2TPH and John VK2AAL. THANKS GUYS keep up the good work.

Dave VK2TDN

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Band Activity Report

6 Metres

The summer Sporadic E season is finally starting up again and there are more regular openings on the band again. Some of the areas I have heard or worked over the last couple of weeks are...

VK8... Darwin; VK4JH and VK4ABW in Townsville; ZL3MH and ZL3NW in Christchurch; VK7ZGK in Hobart and VK5ZMB in Gawler. 22 Nov., I heard the FK8 beacon and the KH6 station but didn't work anyone from those places this time around.

Other ops have also worked into FK8... New Calidonia, KH6... Hawaii, Central America and VK2ARA Ted worked into VK6 Western Australia well done !.

From VK2BHO.... 23rd Oct. worked BG9..., 24th Nov., worked JA's as did VK2FHN, Phil and VK2APG Gerry, 30th Nov., worked VK4,s and JA's ... band was open to both areas at the same time.

On Thursday nite, 27th Nov. Dave VK2EZD was working into VK4 on 52.525 fm

2 Metres

Ted, VK2ARA, tells me that over the last several weeks tropo propagation up and down the east coast has also been active. So keep your ears open on 144.2 SSB or maybe even try some of the farflung repeaters from time to time in the early mornings and early evenings. Don't forget that 70cm also propagates well with tropospheric ducting. Very late on Sunday nite 30/11 a VK2 in Foster was getting into 146.850 repeater with some good coastal ducting.

A 432 to 1296 MHz Varactor Tripler

Dave VK2TDN

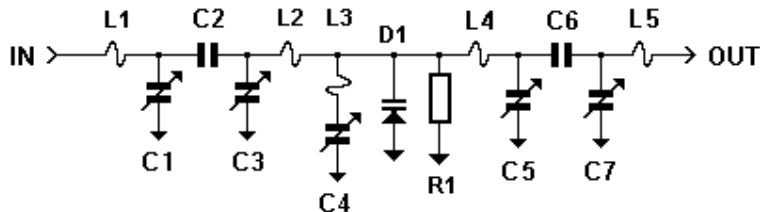
Two of the most common ways to get a signal on the 1296MHz (23cm) band are either to transvert from a lower band maybe 2m or 70 cm. The signal from either of those 2 bands is mixed with another signal from a local oscillator eg. 144 + 1152 MHz to give a 1296 MHz output. This has many advantages including all mode, am fm ssb etc and it is narrow bandwidth. The downside is that a transverter is a serious project with a large component count and lots of tuning to do in long oscillator chains, its not for the faint hearted hihi. I am currently looking into a transverter kit supplied by a VK5 ham which is reasonably priced and looking forward to him getting more stock in.

The other way to get onto 1296 MHz is by using a varactor tripler. This is a passive method ie. No external power supply is needed jst the 432 transmitter power output. The heart of the unit is the varactor diode. This is a variable capacitance diode and as can be seen in the circuit diag. below its symbol is a combination of a diode and a capacitor. When a 432 MHz signal is applied to the diode via a tuned circuit the diode produces a range of harmonic frequencies at steps of 432 Mhz. We pick off the 3rd harmonic at 1296 MHz using a tuned circuit at that frequency and send that to the antenna via a bandpass filter. There is another tuned circuit at the diode to filter out the 2nd harmonic, 864 MHz.

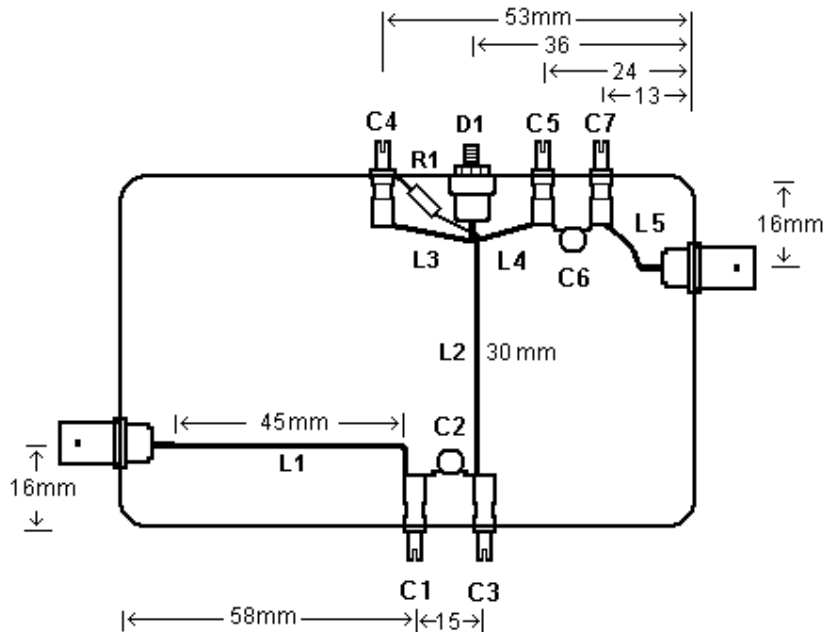
Two types varactor diodes are commonly used in this type of circuit are the BAY96 and BXY35A, both are stud mounted and are capable of handling input power levels of between 10 and 20 Watts at 432 MHz. With 10W input 5-6 Watts should be attainable at 1296 MHz. That's a respectable power level which can be increased more with the use of a yagi or dish antenna, or the corner reflector presented in the last newsletter. Altho these diodes are becoming scarce they can still be got with a bit of looking around.

One important thing to remember with using a tripler is that your fm deviation is also tripled!. So your ~ 12.5 kHz deviation is going to be around 30-40 kHz or so. This calls for the need of a wide band receiver at 1296 MHz. Since a lot of ham's have scanners capable of receiving up to 2000MHz (2GHz) and they usually always have WBFM mode they make an ideal receiver. Another way is to get an old analog satellite receiver from a amateur club auction/sale. These receivers have a tuning range of ~ 900 – 1700MHz putting our 1296 MHz band right in the middle of that range.

Circuit Diagram and parts list

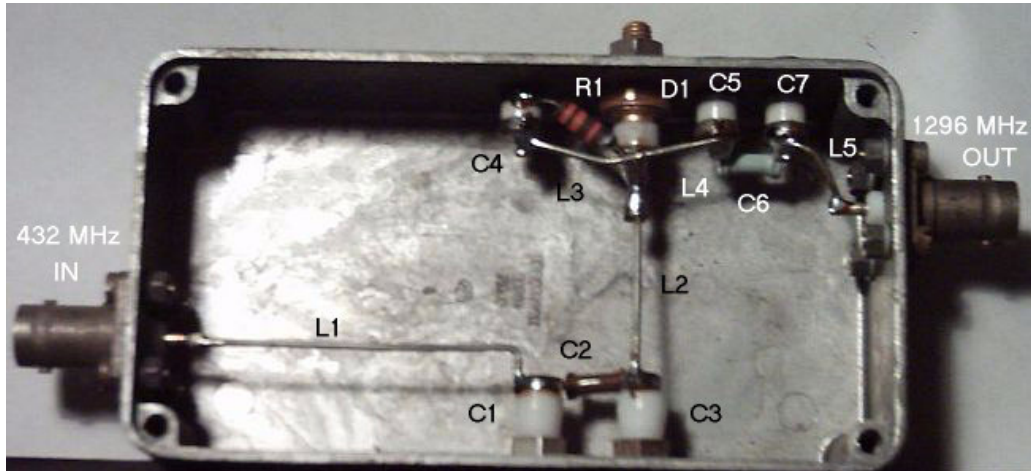


- D1... Varactor Diode BAY96
- C1,3... 1-10pF piston trimmer
- C4,5,7... 1-5 pF piston trimmer
- C2 ... 1p5 tubular
- C6 ... 0.5pF tubular
- R1 ... 33k
- L1-5 ... #18swg Tinned copper wire, preferably silverplated
- in / out connectors ... BNC or N type Preferably N type on 1296 output
- Tune C4 for minimum 864 MHz output
- Efficiency ~ 50%



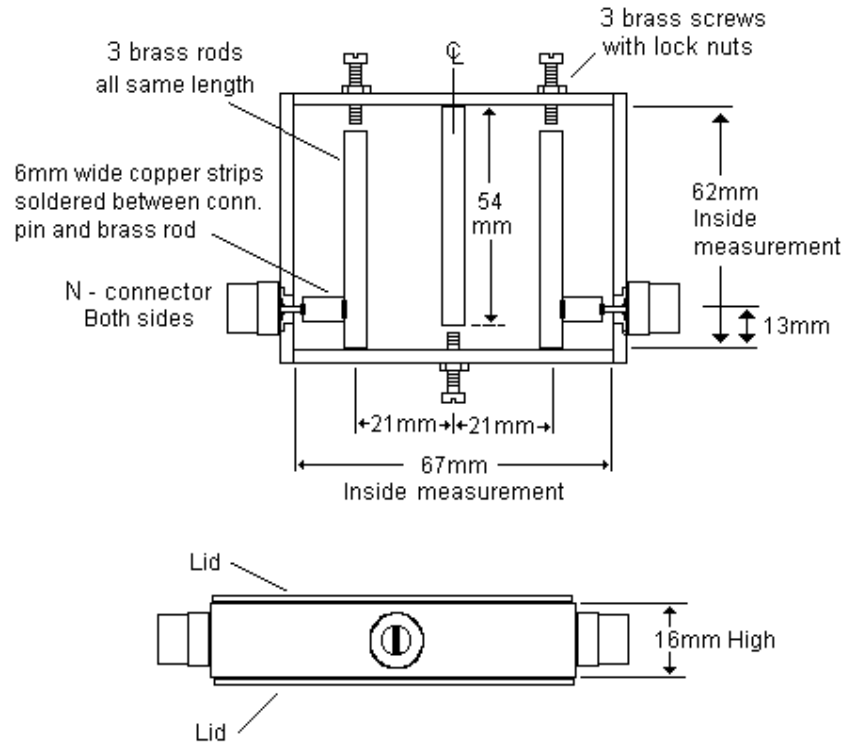
Above.. component layout and measurements.
NOTE these measurements are critical and are taken from inside surface of the box.

Below.. photo of my tripler in Eddystone diecast box 111 x 60 mm



Now one thing that is totally essential for use with a tripler is a good band pass filter. The one shown below can be built in a box made of double sided pcb or of brass. The brass type requires much more machining and making of thread tapped holes, and not every amateur has the tools to do this. Brass rod or copper tube (6mm .. 1/4 inch diam.) can be used for the 1/4 wave tuned lines. The rods are soldered to the walls of the case, and if they are made a couple of mm longer then they can sit in holes in the walls giving much more mechanical strength by being soldered inside and outside. The lids are soldered to the sides of the case making it RF sealed. Insertion should be .5dB or less. Tune it up initially by connecting to receiver and tuning on a weak and weaker signal. Finally place it on the output of the tripler and tune for maximum forward power.

The diagram shows the basic measurements to adhere to regardless of the type of enclosure u decide to make.



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THE TIME HAS COME.

Most of us can only imagine what it must feel like to pack up more than half a century of your favourite pastime. Lyle Patison, VK2ALU, is in the process of packing up and clearing his shack. As well as the usual HF & VHF bits, Lyle has a large range of microwave equipment. It is all on the list to go. Watch the web page and listen to Club news you might find a bargain and help Lyle as well.

To Lyle, congratulations for all that you have achieved and best wishes for the future.

Here's several pics of some antennae that Lyle has for sale....



Above .. A 3.6 metre Dish a ready to go 10GHz moonbounce (EME) setup, the main transceiver electronics are in the box to the right of Lyle's head.



Above... Pairs of 2 metre and 70cm yagis and rotators for doing satellite comms.



Above ... A pair of 70 cm band helicals and Alt/Az rotators also for space comms.

(Ed) thanks to Ted VK2ARA for the report and pics.

Lyle has done so much for the advancement of uWave activity in NSW and Australia over his many years of activity, from his tireless experimenting, to his remarkable VK to England moonbounce achievements. I could sit and listen to him for hours about the various gear he has built up. He has a lot to teach and I have a lot to learn. I would like to hope by getting more activity on the 23cm and up bands that in a small way I can help to keep those bands alive in our club members. After looking through his shack/workshop, 10GHz was definitely his main band. He has a wide range of test and measurement gear for these frequencies.

Have a good time in VK6 Lyle, maybe talk to u on HF from time to time.

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A HF Slim Jim Antenna

With 1 . 1 . 2004 fast approaching, some are going to be looking for skyhooks in about the right place for HF Antennas. Below is some info for a very simple single ended three quarter wave Travelling Wave antenna, otherwise known in the VHF world as a " Slim Jim ". Nothing new here except that you get an effective HF antenna with a feed point very close to one end.

To save repeating the description, they all look like a length of large open wire feedline (see "spacing") which is shorted at both ends. There is a break in one side at 1/4 wavelength. The antenna is fed at the short (1/4) end and the feed point (see "Feed") can be varied to match for either 50 or 75 ohm coax. (Yes low loss foam TV coax works very well if you have an ATU to clean it up). At the feedpoint the coax inner connects to the long side and shield to the short (1/4) wave side. They dont seem to mind horizontal or sloping installations as long as the 1/2 wave end is in the clear.

Formula for all is **Length = 300 / f (in mhz) x 0.75.**

Examples; 10 metre band ; length 7.82 metres. break 2.6 metres, feed approx 0.8metres, spacing 75mm.

20 metre band ; length 15.87 metres, break 5.29 metres, feed approx 0.88 metres, spacing 120mm.

Construction tips.

Wire can be either solid enamelled copper or plastic covered multi strand. Solid copper makes finding and connecting the feedpoint easier. Spacers and end plates can be easily made from clear plexiglass (ie perspex), or you might get away with stealing a teflon cutting board from the kitchen. Might not get dinner but the antenna will work.

I found the connection plate worked best with a UHF (SO239) socket mounted on a piece of perspex with pairs of small holes drilled at each corner so that it can be tied to the antenna with thin wire. End plates also made from perspex plates about 50mm wide and long enough for the spacing. This gives you room for a larger hole on one side for the supporting clothesline rope and the antenna side is drilled at the appropriate spacing for the antenna wire to pass through, tie off and short together.

The spacers or spreaders, you need at least 1 per metre length, are thin strips of perspex drilled at the ends for antenna wire to pass through. Do not tie the spacers in place until after you tension the antenna and get the ends square and the break in the right place. The break insulator can be a wider spacer with the element wire tied off at about 1/2 to 3/4 inch gap.

So there it is. You might not have to wait ten years for that other tree to grow after all. Happy to help if you decide to give it a go.

Ted VK 2ARA.



A Pic of one of the trading tables at the Wagga get together in labour weekend 2003. This one has a wonderful collection of 1/2 inch Andrews Heliax coax along with many various connectors, coaxial relays, and circuit boards out of various transceivers for stripping for parts. Many bargain were to be had around the room. The best I did was a Marconi TF2015, 10-520 MHz Signal Generator for \$25 and it works well ☺.

MURPHY'S LAW OF THERMODYNAMICS ... THINGS GET WORSE UNDER PRESSURE

When the last of 10 screws has been removed from a cover... it will be discovered that the wrong cover has been removed.

When the last of 10 screws has been put back into a cover... it will be discovered that the gasket has been left out.

That's it for this issue, have a wonderful and safe xmas and new year.

Best wishes to all of you and your families.

73 Dave VK2TDN

Disclaimer:

All articles presented in this publication are as given. The IARS accepts no responsibility for any damage to equipment arising from same. The views expressed within are those of the contributor not necessarily that of the Editor.