

Official Bulletin



MHz to GHz

The West Australian VHF Group Bulletin

APRIL 2012

THE WEST AUSTRALIAN VHF GROUP (INC)
PO BOX 189 APPLECROSS 6953

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1. Across the editors desk (or lack of).
2. Members memoriam
3. From the Presidents desk
4. Club activities
5. Beacon bash
6. Microwave adventures

ACROSS THE EDITORS DESK (OR LACK OF)

Hi there all.

The April 2012 issue rolls on. This production is essentially all my own work as I have only received assistance from two other members (e.g. President Bob VK6KW & Trustee Wally VK6KZ) and no contributions from the membership as a whole. This magazine is really in need of new fresh input material. The magazine is the ideal platform to ask radio questions as well as "show and tell" areas of ideas and equipment. Does the above look familiar well it the majority was lifted from the November 2011 issue.

NOTHING has changed.

Come on everyone how about a little help with articles or constructive feedback to make this magazine more useful to our members.

This months issue as you can see above is covering number interesting areas. Besides my comments, there is an article covering the passing of three outstanding members of the VHF/Microwave community. "From the Presidents Desk" our President Bob VK6KW provides some thought provoking words that everyone should consider.

This is followed by a number of articles from the preceding evening activities of January, February, and March. Hopefully the web site flags are still all active. Evening activity suggestions would be greatly appreciated from members. Just contact the secretary or any committee member. WE want to provide what the membership wants.

2. Members memoriam

It is with deep regret to announce the passing of three outstanding members of West Australian VHF/ Microwave community

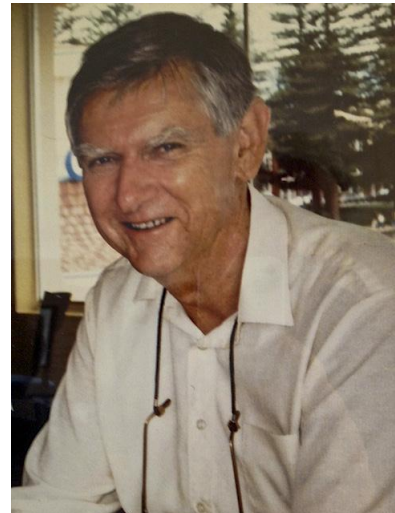
Dr Alan Woods VK6ZWZ

became a silent key mid-December 2011 after a long illness. Alan a noted mathematician was renowned for his work in



promoting field day competitions and scrambles and his innovative approach to microwave transceivers. Alan was a former president of the WA VHF Group 1997 – 2003. His passing will be sadly missed.

Don Graham VK6HK became a silent key early –January 2012 after a long illness. Don was a founding member of the WA VHF Group also acting secretary of the WA VHF Group from 2000 – 2004 & subsequently until his passing Trustee of the Group. Overseeing of the groups Beacons and responsible for construction and installation of just about all of the groups beacons. Don was always interested in new technology whether it was building microwave transverters to the latest SDR equipment. His contribution to the WA VHF Group and the wider AR community is immense.



Walter Green VK6WG became a silent key mid March 2012. Renowned microwave specialist with many long range records from Albany to southern states of Australia. Some records still stand today. Wally turned 100 years old August 2011 and was still operating on 2m right up until his passing.



3. **From the Presidents desk**

What is important to you? Or putting it another way, where do your priorities lie? In recent times we have fare welled a number of former members who have joined the ranks of the silent keys. For those of us who knew them well it is a time for reflection. To celebrate and give thanks for the good times and shared achievements of the life now ended, to comfort those who grieve the loss of family members and staunch friends, and help with the inevitable dismantle and disposal of the now silent shack. A time for taking stock of or re-evaluating our priorities. For others, it is a time for growth, an opportunity to get started in our glorious hobby HAM RADIO, or add another item to the shack and give it a new lease on life in a new home - often at bargain prices. We admire the skill and attention to detail evident in some crafted homebrew item, or puzzle over a modification to a piece of commercial black box gear, junk box items see the light of day again briefly before being stripped or redeployed.

So, other questions arise, here are just a few that come to mind...

What are our responsibilities to one another as individual HAMS? As a club?

How do we care for the living "surviving" partner/family, theirs or ours? (Some who have long felt alienated by or antagonistic towards the hobby, passion, obsession - ham radio.)

What is a 'fair price' and how established? Where is the market for all this exotic stuff?

Have you made contingency plans to guide your executor/family/friends in the event of your untimely (we always say that) but inevitable silent key award? I for one MUST start now, but first...!!

Easter, for many, is a time for NEW BEGINNINGS, and as a club, the WA VHF Group Inc. is (we are) on the threshold of a BIG one. We have been invited to submit a case to establish a permanent HAM station with independent access at the Wireless Hill Museum site. This 'never to be repeated offer' raises echoes of a passage in the July 1971 edition of this Bulletin which hailed the imminent establishment of the Museum. If this long-held dream is to be realised we NEED ALL HANDS ON DECK. Your physical, practical and inspirational support is needed over the next 6 months to...

Help with the planning -

Attend meetings, and busy bees -

Set up and Run a repeat of the Super Springtime station during Show Week (Wireless Hill Centenary)-

Beacon maintenance - including field trips -

Beacon monitoring -

Recruit new members....

As President, I can beat the drum or blow the trumpet... but not both!!

73, Bob VK6KW

4. Club activities March 26-03-2012

AMATEUR RADIO MICROWAVE PROJECTS

BY Terry VK6ZLT

Constructing and operating in the microwave region is one of the most satisfying ways an amateur radio enthusiast can get a real “hands on” feel for radio.

By far the simplest way is to construct a transverter which is a receive converter and transmit converter joined by a common local oscillator. Its intention is to convert a transceiver to a different set of frequencies or band. Why a transverter? Simply performance & economics, the transverter can be used in any mode the existing transceiver possesses.

To whet your appetite check out the following sites.

<http://www.minikits.com.au/>

- [1200MHz Transverter Kit](#) (Can also be used to construct a 23cm FM Voice Repeater)
- [2400MHz Transverter Kit](#) (Cannot be used on 2304MHz)
- [3400MHz Transverter Kit](#)
- [Local Oscillator Kits](#) (Butler Design 400 to 600MHz Output)
- [Oscillator Heater Kit](#) (To suit the Butler Kit & Others)
- [Transverter Sequencer Kit](#) (Universal Sequencer for Transverters or Power Amplifier Sequencing)
- [Oscillator Multiplier Kits](#) (To suit 2.4, 3.4, 5.8, & 10GHz Outputs)
- [Weather Sat Receiver Kit](#) (For 137MHz APT Satellites)

<http://vkfaq.ampr.org/specmicro.php> Australian microwave

<http://www.downeastmicrowave.com/>

<http://www.wa1mba.org/> Domain for microwave amateur radio

<http://www.wa1mba.org/interest.htm>

<http://www.g3pho.free-online.co.uk/microwaves/ghz.htm> British microwave

<http://www.w1ghz.org/> an excellent microwave source

There are number of books available through well known AR sites like

<https://www.wia.org.au/members/bookshop/index.php?cat=11>

<http://www.arrl.org/shop/What-s-New>

<http://www.rsgbshop.org/>

Club activities February 27-02-2012

AUDIBLE FIELD STRENGTH METERS

VHF GROUP ACTIVITY 27/2/2012

By Terry VK6ZLT

The emphasis of this discussion is on audible FSM's. This capability allows the user to be aware of the RF fields being generated by equipment or aerials. It easily assists in tuning aerials with a SWR bridge. Some SWR bridge can be enhanced by the addition of a voltage frequency converter working into a speaker output. Example are given in schematic #'s 7, 8. External v/f audio may be installed in standard FSM or Bridges.

The majority of this document was generated in 2009 as follows.....

As the amount of information on DIY field strength meters is vast to say the least, here are some websites from which the for-going circuits have been obtained.

<http://pe2er.nl/index.htm> WiFi antenna measurement.

<http://vk1od.net/calc/mtfslucr.htm> antenna measurements

http://www.qsl.net/n9zia/wireless/pics/LED_sig_meter-1.png LED rf signal meter

<http://www.zen22142.zen.co.uk/Circuits/rf/fsm.htm> simple fsm using fet transistor

http://homepages.nildram.co.uk/~baker/FSM1_Overview.html

Materials from which the demonstration examples have been built are from local suppliers such as **Altronics, Jaycar, WorldWide** or national suppliers such **Farnell or RS Components**.

It should be noted that the supply of general purpose point contact diodes has all but dried up so GP schottky diodes have been substituted in place of.

Note:

If diode requirements (detector or mixer) are in the microwave regions GHz & above do note overlook the schottky HSMS -8xxx series of surface mount devices or equivalents. They are available in various configurations such as single, series pair, unconnected pair, ring quad or even cross-over. These are available from RS or Farnell.

Some of these devices have amazing switch on voltages in the order 120mv – 150mv.

Other points of interest to noted the use of Analog Meters, DVM, Led indicators, Aerials and means of calibration

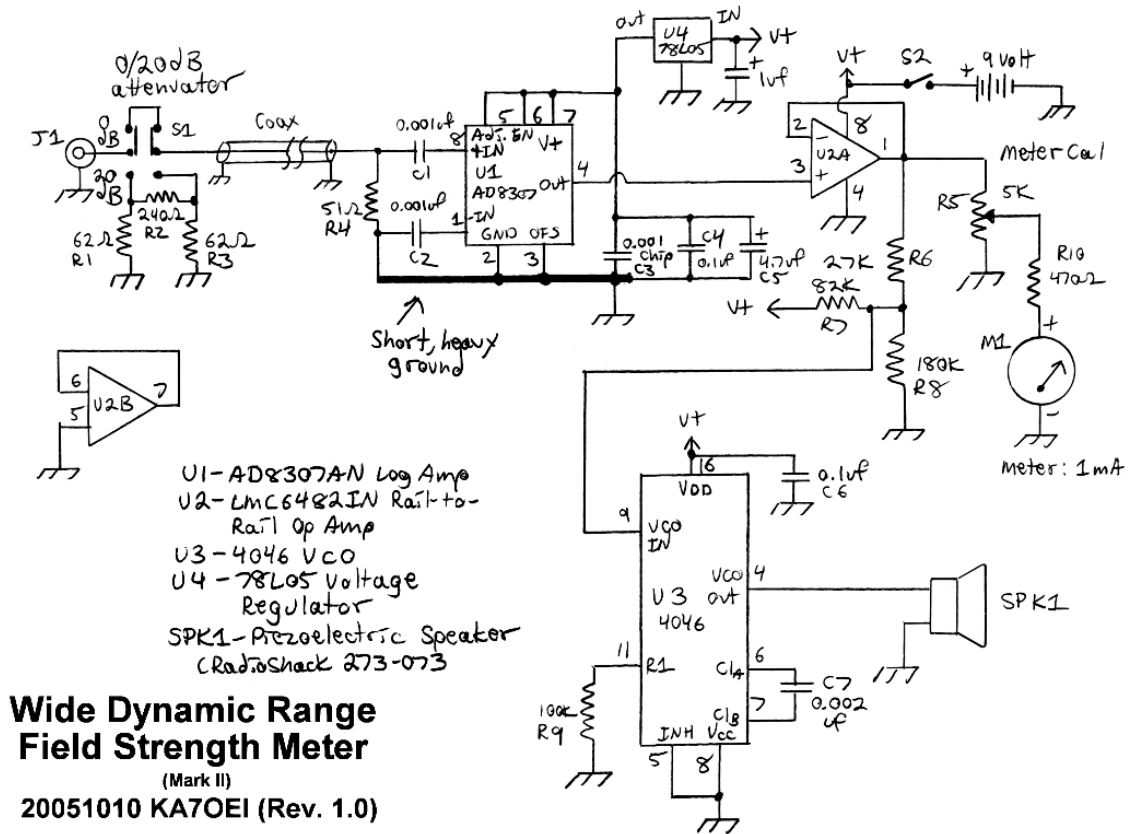
The PCB layouts are included in this document.

They are not to scale but can be scaled to fit in this word document by clicking on the corners and altered to suit the physical dimension of the DIL pin connections.

The parts layout can be obtained from the :.....

http://homepages.nildram.co.uk/~baker/FSM1_Overview.html

All the info required is within this website. Should members require assistance please contact secretary@wavhfgroup.org.au



Club activities February 23-01-2012

Old TV AERIALS FOR AMATEUR USE By Terry VK6ZLT

Aerials for the 70 cm band are not too different in construction from most aerials. The change comes about as the frequency increases the accuracy in the elements construction becomes very important.

The process really starts this way:.....

1. What do I require from the aerial for?
2. Are there any physical constraints.
e.g. does it have to be portable (Field Day Aerial) or On a mast in fixed position etc..
3. What type of aerial do I require?
4. What sort of material the aerial is made of and the dimensions of that material.
5. How do I design the aerial that is required?

For my aerial I want to build a yagi type aerial that would make a good home masthead aerial and if need be portable enough to fit in the car for a field day aerial.

One of the ongoing problems in West Australia is sources of aluminium stock of the type suitable for aerial construction for the amateur vhf enthusiast.

Most local Councils during the course of the year have curb side pickups of unwanted goods. It would appear that a large amount of old unwanted TV aerials appear in these curb side pickup sites.

These aerials are usually old ANALOG or ANALOG + UHF reception such as depicted in fig #1

Note the angled elements are semi folded & should be straight out at 90 degrees to the boom



FIG #1

Some old UHF TV antennas are come complete with a Corner reflector that increases directivity such as depicted in Fig #2

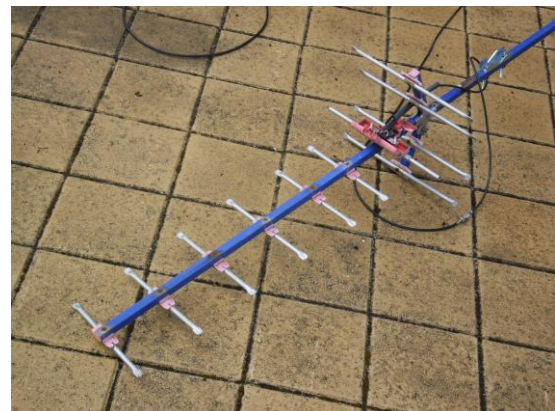


FIG #2



Now the question comes about as to what can be utilized out of the pile of aluminium that can be converted to amateur use. Most of the tubular stock is approx 10mm diam. which is convenient for designing aerials from scratch.(see end of file) The long element sections from the analog antennas come in handy as elements of 2m yagi antenna. The UHF sections in a lot of cases need only the driven element to be modified and then a retune of the setup. Now tuning of the aerial requires modification of the position of the of the corner reflector. This requires removal of the

mounting rivets and position locks which in most cases is straight forward and easy. The test set up that I use is simple to construct consisting of tripod mount from a projector stand, 2 x lengths of 20mm pipe. A irrigation T-piece, 1 x rubber door jamb, 4-litre bottle of water (for stability of setup).

All this is depicted in FIG#3

Note the rubber door jamb is to stop the pipe from rotating (weather vaning) in the tripod tube.

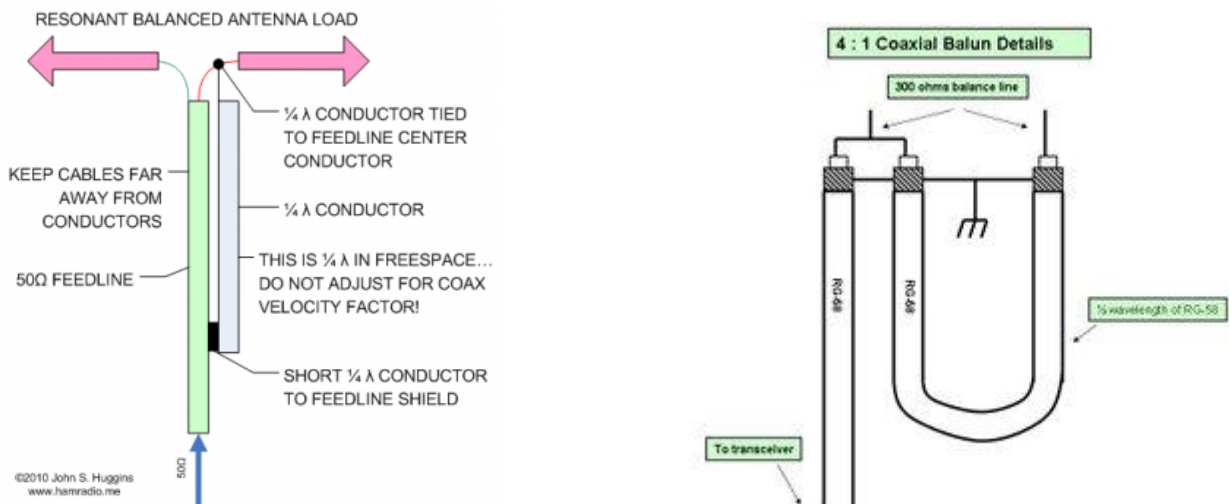
Now the connection to the aerial driven element follows the standard design that is for a dipole requires a balanced-to-unbalanced connection which the use of a **PAWSEY STUB** to enable this to work. The second is for a folded dipole which requires 4: 1 impedance ratio as well as a balanced-to-unbalanced connection which utilises a **HAIRPIN STUB**.

By far the easiest way to design a yagi antenna is to use a well-known aerial design computer program originally created the DL6WU and subsequently modified for windows by VK5DJ

This program can be obtained free from this site <http://www.vk5dj.com/yagi.html>

Down load the antennas program YagiCalc.zip and unzip into folder of your PC.

This program enables your design to modify existing elements to be more specific.



Pawsey Stub or Bazooka if a tube is used or hairpin stub for folded dipole

5. Beacon bash

VK6REP Esperance sight has been confirmed with the owner All OK.

VK6RST Currently off air for reasons unknown. Members are requested to mount a concerted effort to organise a weekend to refurbish the site and return the beacon to 24/7 operation. All volunteers contact President or Secretary to agree on a common date for the activity.

The Perth beacons have been operational barring some silent periods created by lightning strikes leading to power cessation. Wireless Hill beacons have been intermittent due to refurbishment of the museum.

6. Microwave adventures

Check out the following microwave website by VK4ADC

<http://www.vk4adc.com/web/index.php>

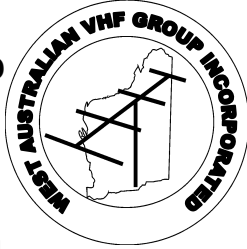
Take particular note of the antennas “**vhf/uhf projects**” in the menu on right hand side. Next, “**microwave projects**” contains some more interesting items such as a 4GHz pre-scalar, Microwave RF Power Meter 100MHz to 12GHz , A very nifty microwave RF Bridge complete with p.c.b layout etc..

Terry VK6ZLT has been stimulated by the acquisition of the 10GHz system formerly owned by Don VK6HK. Terry is now brushing up on microwave local oscillators and experimenting in stabilisation & GPS accuracy.

What can you contribute to the advancement of the club?

The group is looking for members who could play an active and supportive role in assisting in the development of the future interests of the WA VHF Group club.

Your Club needs you

TO: THE TREASURER THE WEST AUSTRALIAN VHF GROUP INCORPORATED PO BOX 189 APPLECROSS 6953	
I VK6 _____ NAME _____	
ADDRESS _____	
Are you a WIA member Y/N	POSTCODE _____
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