

WANSARC NEWS

Incorporated in Victoria, 1985 Registration Number: A0007611S

The monthly magazine of the

Western & Northern Suburbs Amateur Radio Club Melbourne, Australia



www.wansarc.org.au

146.450 MHz FM

VK3AWS

28.470 MHz USB

Volume No: 41

Issue 3

April

2010



Next Club Meeting, Friday 9th April at Ern Rose Memorial Pavilion, Seaver Grove, Reservoir @ 7.30pm

John Moyle Field Day – An army runs on it stomach, well the WANSARC Army looks ready to fire!!



Around the Shack

John Moyle Field Day ~ John VK3FMPB

All Band HF Dipole ~ Peter VK3YSF

EMDRC HAMFEST 2010 ~ John VK3FMPB

Two Meter Loop Antenna ~ Trevor VK3FTDX

Block Diagram of new Digital ~ VK3RTV Amateur Radio Television Repeater

WANSARC Club Profile

2

4

5

8

9

11

12

Around the Shack

ANNUAL GENERAL MEETING RESULTS

The club had all positions filled prior to the AGM.

Office bearers for the following year are;

Position	Nominated
President	Graeme VK3NE
Vice President	Mick VK3CH
Secretary	Mark VK3PI
Treasurer	Rod VK3MRT
Committee 1	David VK3DTS
Committee 2	Gordon VK3YOD
Committee 3	John VK3FMPB
Committee 4	Dan VK3DWH
Committee 5	Trevor VK3FTDX
Net Controller	David VK3DTS
Magazine Producer	Mick VK3CH
Public Officer	Graeme VK3NE
Webmaster	Rod VK3MRT
WIA Assessor	Mick VK3CH

WANSARC MEETING DATES 2010

Date	Purpose
April 9	General meeting
May 7	General meeting
May 19	Committee meeting
June 4	General meeting
June 13	Club day
July 2	General meeting
July 18	Club day
August 6	General meeting
August 15	Club day
August 18	Committee meeting
September 3	General meeting
September 19	Club day
October 1	General meeting
October 17	Club day
November 5	General meeting
November 21	Club day
December 3	CLUB DINNER

With the exception of the Family Day and Club Dinner, all other meetings are to be held at the WANSARC clubroom venue, Ern Rose Memorial Pavilion, Seaver Grove, Reservoir.

CLUB FEES DUE – PAYMENT TO ROD VK3MRT

With the AGM it's a timely reminder that annual club fees are due. At the last committee meeting and AGM vote, fees will stay the same, making WANSARC excellent value for your money.

NEW MAGAZINE PRODUCER

Mark has decided to take a well earned rest from producing the 'mag'. Your new scribe is Mick VK3CH. I'm not used to Publisher, so your newsletter will look different, but I reckon I can fit more text in this way! So I'm going to need your help in filling the spaces. Contributions always welcome, it's YOUR magazine, see me at the club or email me at vk3ch@wia.org.au Emails can be plain text, Word, Excel, Publisher, PDF, anything!

WANSARC 40 YEAR HISTORY

The history of the club to date has Mark on a marathon task of collating a mound of paperwork, photos and certificates. The finished work will be ready later in the year sometime. Any club history you may know of or have please let Mark know, or bring it along to the next meeting so he can check it out.

WANSARC Vol 41 Issue 03 2010

VK3CH ~ PORTABLE POWER

With generators not being allowed at our favorite park anymore some sort of alternative power is needed. While the car is always an option the risk of not starting the motor at the day's end is a concern. I heard that Randal VK3RM from EMDRC sells second hand motor scooter batteries for \$25 each, being 12v 55Amps. Needing both 12v and 24v to run radios and ATV, I used 2 of them with internal fuses and voltage monitoring units premade from Jaycar, with the crate from Officeworks, 38kg weight all up.



A top / side view, a plastic cover has since been added for safety.



KYNETON HAM FEST 2010



Some of the gang at Kyneton this year, Trevor FTDX, Mark PI, Ian QL, Rod MRT and Graeme PGK.

Also seen about was Mick CH, Bob EL, Johnno FMPB, Graeme NE, Pam NK and Dave DTS, who also won a prize at day's end.

PORTABLE MASTS FOR THE "PARK" & FIELD DAYS

After hassles with the buckets supporting masts steady last Family day, there must be a better way. Idea probably done before, simple, no drilling the car, keeps XYL happy – if that's possible! Tubing joined together using plates available at Bunning's.



I put some yellow tape so I can know I'm near centre as I drive the car over the tubes. A plate was put in the centre to stop any spreading with car on them. The weight of the car keeps everything firm with little 'play' in the masts. Two of these give 4 masts, so I have dual X7000 antennae for VHF / UHF and another 2 for ATV TX & RX beams. It's quite light as well. If your car is smaller than you just cut the length to suit its width which will make for a more compact length for transport.

It sure beats packing 4 surveyors tripod masts and lots of buckets and bricks!

Cost was around \$155 for both of them, with "U" bolts used to put it all together. With 2.7 meter mast height from the ground, it's enough to keep ground radials or beams from clobbering anyone's head and keeps the coax runs short with little loss at UHF. As I go to ground already high, the "gain" and good line of sight is already there.



Photo next column;

Ready to go, the gear can even go in the back with a chair to sit and operate, or park at a nearby table or shelter. Only need to deal with questions and stares from the public, not that I need AR to get that (hi) ~Mick VK3CH

WANSARC Vol 41 Issue 03 2010



VK3RTV NOW WITH STEREO SOUND

Stereo sound is available on both DVB-S and Analogue inputs. For analogue, the sub-carrier frequencies are 6 and 6.5 MHz respectively. You will need to send a DTMF code * 0 3 # to enable stereo on Analogue.

On system reset it will default to mono (LH) with the RH muted. Unless you send the DTMF code, the RH channel will be muted in the analogue mode.

Without this function, stations not having a 6.5 MHz subcarrier will produce significant noise in any stereo receiver. (RH channel running noise)

I have also installed an ICOM IC28 up the hill; this will facilitate communications when making adjustments in the future. The digital project will be completed as originally envisaged when new 23 cms arrays are finished, Currently VK3RTV1 DVB-S is running on a temporary antenna. ~Peter Cossins VK3BFG

FOR SALE – ANALOGUE 23CM ATV TRANSMITTER
ATV Minikits unit For Sale \$495 O.N.O. Can demo working. Free running VCO, TX 1250 & 1283MHz, 6MHz Sound IF 12 watts output, large heat sink, tested and tuned, full documentation, all the work is done for you, just needs driver board levels setup. See Mick VK3CH vk3ch@wia.org.au
If no interest expressed by May, then it goes on VK Ham.

NEW VK3AWS NET CONTROLLER DAVE VK3DTS

Tuesday night Net's on 146.450MHz are now run by Dave, after Bob VK3EL decided it was time for a break. Bob and Mick gave Dave some tuition (or was that the shits) on his first night!! But Dave managed to breeze through proceedings and has settled in to the new role and has good signals across WANSARC territory.



John Moyle Field Day ~ John VK3FMPB

John Moyle day is a true expression of the team work that WANSARC prides itself on possessing. One person brings a radio and antenna for HF, another a radio and antenna for 23cm and yet another brings the 2m gear. Antennae, radios, coaxial cables, tables, chairs, Food, BBQs, Tea Coffee and biscuits. etc etc etc. Every person in the WANSARC team does a little which contributes to the whole. How unfair to rely on one or two people to carry the weight? Remember the Wansarc Motto, "Teamwork, that's what we do!" That's how and why we win. This will be either the 4th or 44th year we will have won the John Moyle memorial field day contest, but who's gloating or counting?

On site, A few members are already here with some masts etc. and others talking. We hams do a lot of that. VK3s FTDX Trevor, DTS Dave, EL Bob, DWH Dan, HDX Don, FMPB Johnno, FJPM Jesse, and ATA Uri are here nice and early. We have a few members still mobile on the way here. Radios can already be heard chattering away. Sadly, no points are available at the moment. The set up process up is moving along nicely and everybody is doing something.

Today we have Frank ZO, on 40m; Bob EL, doing some testing today, Don, HDX and Mark PI are running 6 meters. Trevor FTDX will be running 20 meters using a rotatable dipole. JESS, FJPM is contesting on 10m. As usual Rod MRT will be collating the figures, logging same and keeping the whole show running smoothly.

Rod MRT Victor DKM Dan DWH Johnno FMPB are the standby operators ready to jump in wherever needed. Lunch is served at 12:15 or so and people are enjoying the feed, quick as it may have been. BBQ hamburgers, coleslaw and drinks are fine for our purpose.

Start time is 1300 hrs local and it is slow, the contacts are not happening right now. It is hard work, but we are not afraid of hard work at WANSARC. Frank ZO is trying 50.160 but it's as dead as a door nail or a Dodo or something. Having said that Frank was running gangbusters on 40m an hour ago, sadly 2 meters was also very quiet with the same dozen or so stations around and we can't work them until the next block anyway.

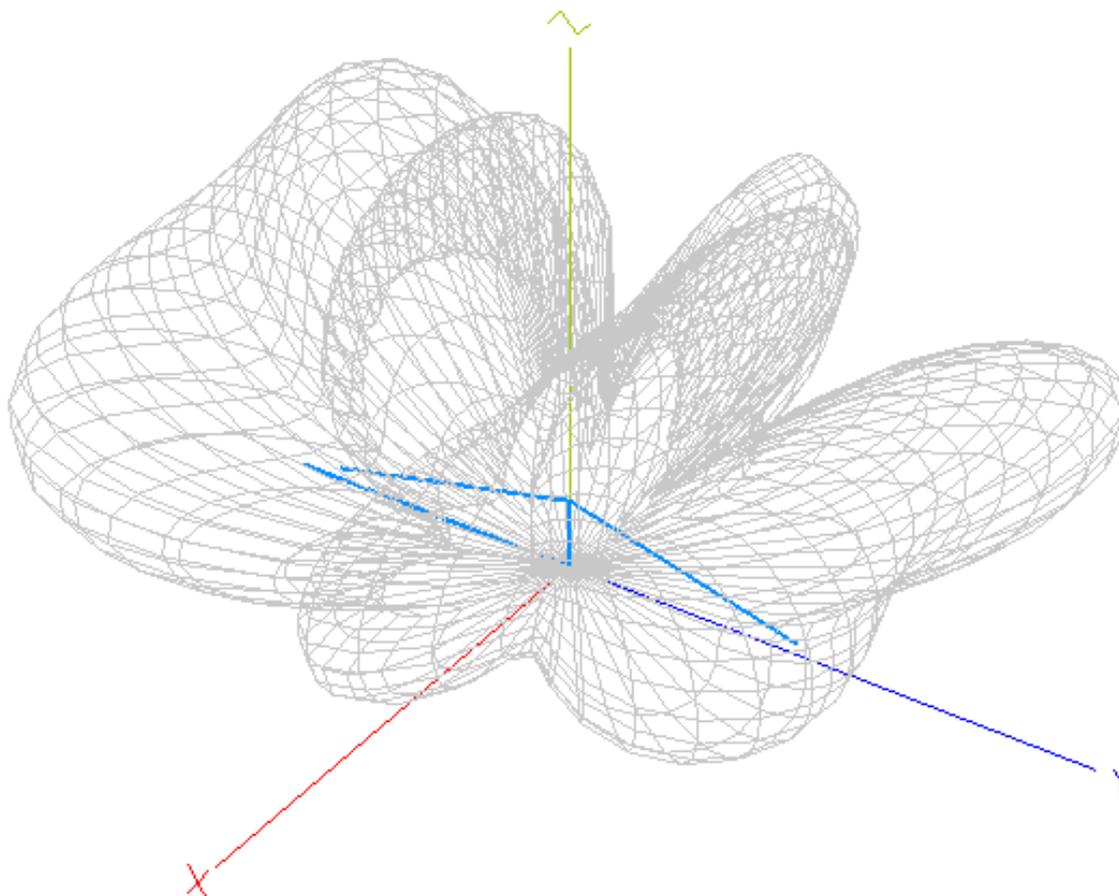
Do you think people actually know that it's John Moyle day today? On 40 meters Frank reports that the bands are still running hot. Vkl, 2, 3,5,6,7 all coming in with the emphasis being obviously on VK3 and VK2. The only difficulty being with VK4 which is pretty scarce at the moment. Afternoon tea and Bob has kindly made us some apple pie and a mixed berry pie. Bob cut it up then Johnno added cream from a can which somebody has produced from somewhere, and delivers it to grateful operators around the place.

The second block has started and we are now able to log stations we logged in the first block. We hope there are hundreds of them just waiting for us. Later on, afternoon tea is Sausage role time. Bob EL offers us another feed of some homemade little sausage rolls. Very cute little snacks they are too, and rather moorish Mark is heard to say. Mid afternoon and things are slowing down a bit.

Dave is trying 6m with a little success. Others are still trying their own bands. 2m is alive as it has been for most of the day and Mark is trying to milk it for all it's worth. Don tells me that 23cm and 70cm are still going well. It seems that HF is slowing down now. Uri ATA tells of a slow 20m band but then walk across the compound and frank tells of a hot 40m band and this changes numerous times during the day. Radio signals are funny things aren't they?

Time is up and another John Moyle day is now over and all we need do is dismantle our stations, a much more relaxed job than last year when the storm hit. People are heard around the site making plans for next year already, is that keen or what?





The All Band HF Dipole was constructed and refined for use with my Z-Match Antenna Matching Unit at my previous residence in Melbourne, Victoria from 2004 - 2007

Despite the space limitations of a suburban block I wanted an antenna that would be suitable for all the HF amateur bands, including the so called WARC bands and ideally including the 160 meter band. The antenna system should also be useful for other HF services i.e. broadcast, military etc. Another aim was to develop an antenna that could be used portably, that is being able to be simply rolled out and hung up in a convenient tree or similar. What became the clear choice was a dipole cut to no particular frequency, simple cut to the maximum length for the available space and matched with an AMU (Aerial Matching Unit) to the transceiver. With the antenna suspended at the centre feed point to create a low slung inverted vee configuration the antenna is very easy to install which is consistent with the second aim of portability, that is the antenna can be suspended from a single support and is there for easy to erect from a single tree for example. I referred to the antenna as a random length dipole, but there are a couple of limitations to the ultimate dipole length. First antenna efficiency will drop of significantly at lengths dramatically less than a half wave length for the lowest frequency band to be operated. It is also wise to avoid lengths that produce extremely high impedance to the AMU as it may be beyond its ability to match this impedance. The second example is fairly easily rectified by simple adding or subtracting some length to either the dipole or the feed line, often as little as a meter will do the trick. My final antenna system consisted of a 28 meter centre fed dipole (14metre for each leg) suspended at the centre and supported with my existing 6 meter tall galvanized steel pipe mast and fed with 18 meters of 450ohm ladder line via my Z-Match AMU.

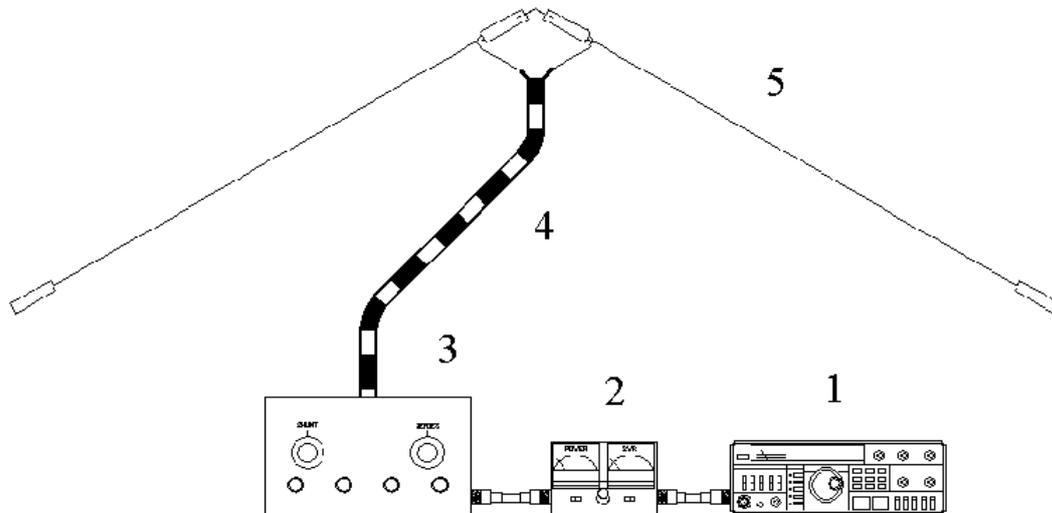


Construction

The physical assembly is extremely simple and cost effective consisting of standard electrical copper wire with the insulation removed, light weight end and centre insulators fashioned from fibre-glass rod. The centre insulators and support attachment consisting of a heavy duty stainless steel key ring. See the above photo.

The 18metres of 450ohm ladder line feed has been installed with sweeping bends and care to avoid as far as practicable any other cable and metal objects. See stand off insulator fashioned from nylon set screw with fibre-glass spacer sleeve.

One of the disadvantages of this antenna system is that it is a balanced system that is each halves of the dipole and feed-line configuration have to mirror the other. Failure to achieve this will cause the feed-line to receive and radiate energy which will result in a distortion of the radiation pattern and also allow the feed-line to pick up stray signals from computers etc as the feed-line enters the radio room. Despite this I have found that this antenna system is reasonably forgiving.



Basic All Band Dipole Arrangement

- (1) HF Transceiver.
- (2) VSWR Meter.
- (3) Z-Match AMU.
- (4) 450Ohm Ladder Line. (Can be any realistic length. In this case it was 18Mtr)
- (5) Inverted 'V' Dipole. (Length subject to available installation space. In this case it was 28Mtr total length)

Performance

The antenna has been installed roughly in a north-south alignment. When the antenna configuration is modelled with MMANA-GAL Antenna Analyser, the following radiation pattern for the 10mtr band is produced. I have overlaid the results on the great circle map centered on Melbourne, Australia. Now I know this is not to be taken as gospel however it gives some clues of what is going on and the results have been born out to some degree by the stations that I have contacted.

The radiation pattern for this antenna is both an advantage and disadvantage based on how they form with relation to the various bands. The 10metre band experience seems to be for the most part a good outcome.

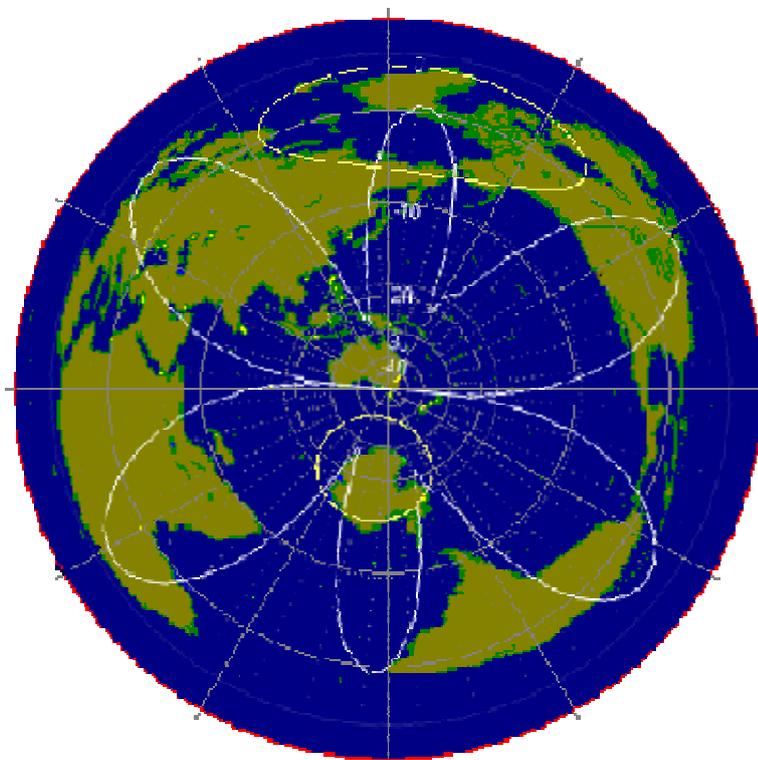
Considering the above radiation plot for 28.5Mhz with the first 10metre band contacts on the 8/12/2004 Allan VK4HUX on 28.47Mhz North of Brisbane, and on the 11/12/2004 David K8CC Missouri USA and Theodore N6IIU Sonora California USA also on 28.47Mhz.

See below plots for comparisons with other bands and as I said these results are not to be taken as gospel, but do give clues about what patterns can be expected with this sort of antenna system.

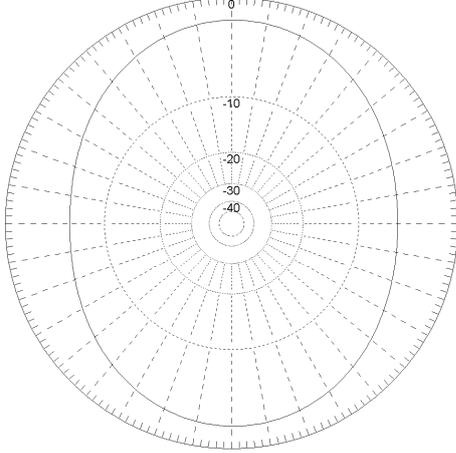
The first HF antenna system that I erected in early 2004 was a simple 40 meter band dipole in a similar height and alignment. This antenna was operational on both

the 40 meter and the third harmonic band of 15 meters and provided a good operational comparison with the replacement all band dipole system and gives almost identical operating characteristics on the two above mentioned bands.

The random length all band dipole represents some clear advantages in cost and operational flexibility within the limitations of the average Australian suburban block. There for if you can have only one HF antenna the random length all band dipole would be a pretty good choice.

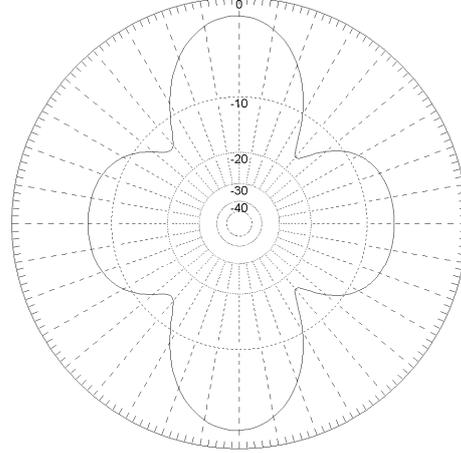


INVERTED FLATE VEE HF (Current installation)

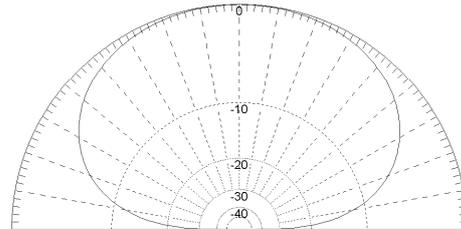
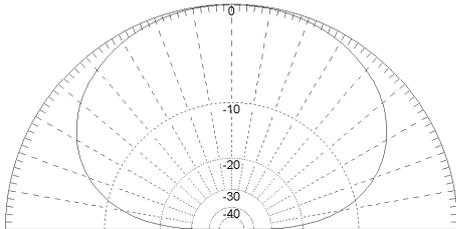


Ga : 6.69 dBi = 0 dB (Horizontal polarization)
 F/B: 0.00 dB; Rear: 0 dg.
 Freq: 7.150 MHz
 Z: 88.424 + j517.663 Ohm
 SWR: 11.9 (450.0 Ohm),
 Elev: 90.0 dg (Real GND :0.00 m height)

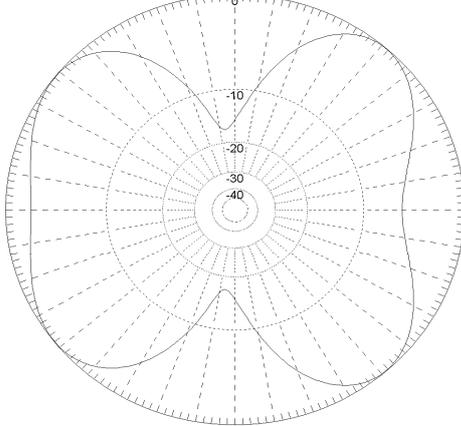
INVERTED FLATE VEE HF (Current installation)



Ga : 7.49 dBi = 0 dB (Horizontal polarization)
 F/B: 0.00 dB; Rear: 0 dg.
 Freq: 14.150 MHz
 Z: 200.846 - j828.999 Ohm
 SWR: 10.2 (450.0 Ohm),
 Elev: 90.0 dg (Real GND :0.00 m height)

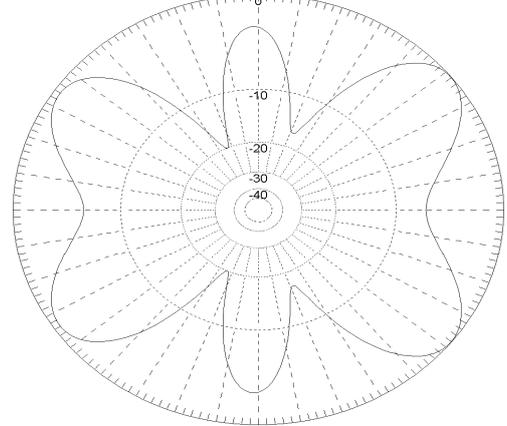


INVERTED FLATE VEE HF (Current installation)

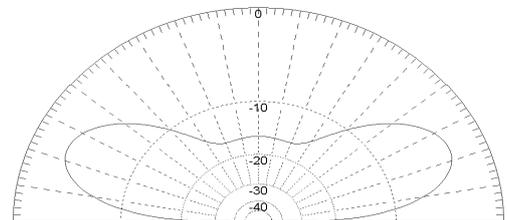
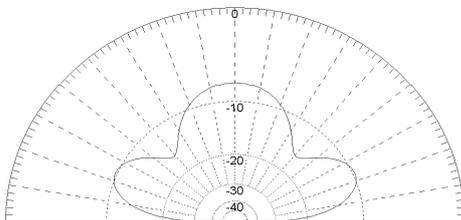


Ga : 5.63 dBi = 0 dB (Horizontal polarization)
 F/B: 0.00 dB; Rear: 0 dg.
 Freq: 21.200 MHz
 Z: 427.076 + j984.645 Ohm
 SWR: 6.9 (450.0 Ohm),
 Elev: 90.0 dg (Real GND :0.00 m height)

INVERTED FLATE VEE HF (Current installation)



Ga : 7.26 dBi = 0 dB (Horizontal polarization)
 F/B: 0.00 dB; Rear: 0 dg.
 Freq: 29.500 MHz
 Z: 592.799 + j879.989 Ohm
 SWR: 4.8 (450.0 Ohm),
 Elev: 23.9 dg (Real GND :0.00 m height)



The above radiation plots were produced using MMANA-GAL Antenna Analyser software by JE3HHT, Makoto (Mako) Mori at <http://www.qsl.net/mmhamsoft/>
 References ~ The ARRL Antenna Book. The 1990 ARRL Hand Book.
 Cheers ~ Peter Miles - VK6YSF

TWO METER LOOP ANTENNA ~ Trevor VK3FTDX

Bill (VK3KBL) and I Trevor (VK3FTDX) were sitting around the kitchen table discussing the advantages and disadvantages between different types of beam antennas, while drinking tea and eating biscuits with the complements of Bill's XYL Jan. Bill was telling me about the loop antenna from RSGB book and how flat it was across the band this stirred up my interest in this type of antenna.

A couple of weeks later I came over to visit Bill again and bought an antenna analyzer with me, hooked it up to Bill's 23 cm and 70cm loop antenna's and what do you know Bill was right these little beauty's work very well The 23 cm was very broad banded and the 70cm antenna was almost flat across the entire band except for a very big spike between 460.00 and 470.00 and then flat up to 490.00, the design come out of the RSGB for 23 and 70 cm loop ATV antenna and with the help of VK3KBL Bill and I rescaled the antenna to suit 2 Meter band.

This was it I had decided to build a two meter loop with a lot of prompting from Bill saying I have just the thing follow me, so down into the catacombs of Bill's QTH I followed, there he said just what you need and bill produced a hand full of 10mm aluminum tube all we need know is some copper tube and hay presto there it was copper tube. So I had to find a boom, N panel mount to inline for 213 or lmr400 coax connector and a 10 X 10 mm gal weld mesh like what you see on a chook pen stainless steel bolt's with washers and nylock nut's, some Sickaflex (Silicon).

Construction started and Bill showed me the method he used to manufacture the loop, cutting each element to length squashing each end then drill, the center of the hole is the physical length of the element which worked very well so we cut all the elements to length then marked out the spacing's on the boom and drilled all the holes stage 1 completed.

In the process of the second stage the elements were bent around a plastic 44 gallon drum then fitted to the boom with SS bolt through the loop and the boom washer and nylock nut, construction of the driven element was the same except for there was a gap at the top where it was fed by the coax, feeding it at the top is to allow the impedance match, the coax ran through the middle of the loop through the boom where it was terminated with the N panel mount connector on the bottom of the boom.



Note how they were squashed then overlapped to sit flush
This was done in a vice with a lathe tool on one side of the tube



One end of the copper tube to the shield and other to the center of the coax.

Coax through top of boom just behind driven element, feeding top of driven loop which must be slightly oval, other elements are round.



My construction technique inspected for quality
By Jess VK3FJPM It was up scratch, I was given the nod and continued on with the construction; checked SWR 2.1:1 while it was leaning against the ladder pointing at the stars.



N connector mounted on bottom of boom



Stage three - fitted the support strut across the top of all the elements to stop them bouncing around and build the mesh reflector and off into the field to test it.

With some rudimentary equipment and dipole as a point of reference Dallas VK3EB and VK3KBL were receiving my signals and Craig VK3XOR and myself erected my antenna in the field open air to avoid any interference from surrounding buildings.

Dallas to the west about 10 Km was at his QTH and Bill about the same to the South West at his QTH of test site, we then carried out some tests on the loop antenna.



Dallas was receiving with some attenuation equipment and he ascertained that we were in the vicinity of 18 db forward gain and 25 db Back to front ratio.



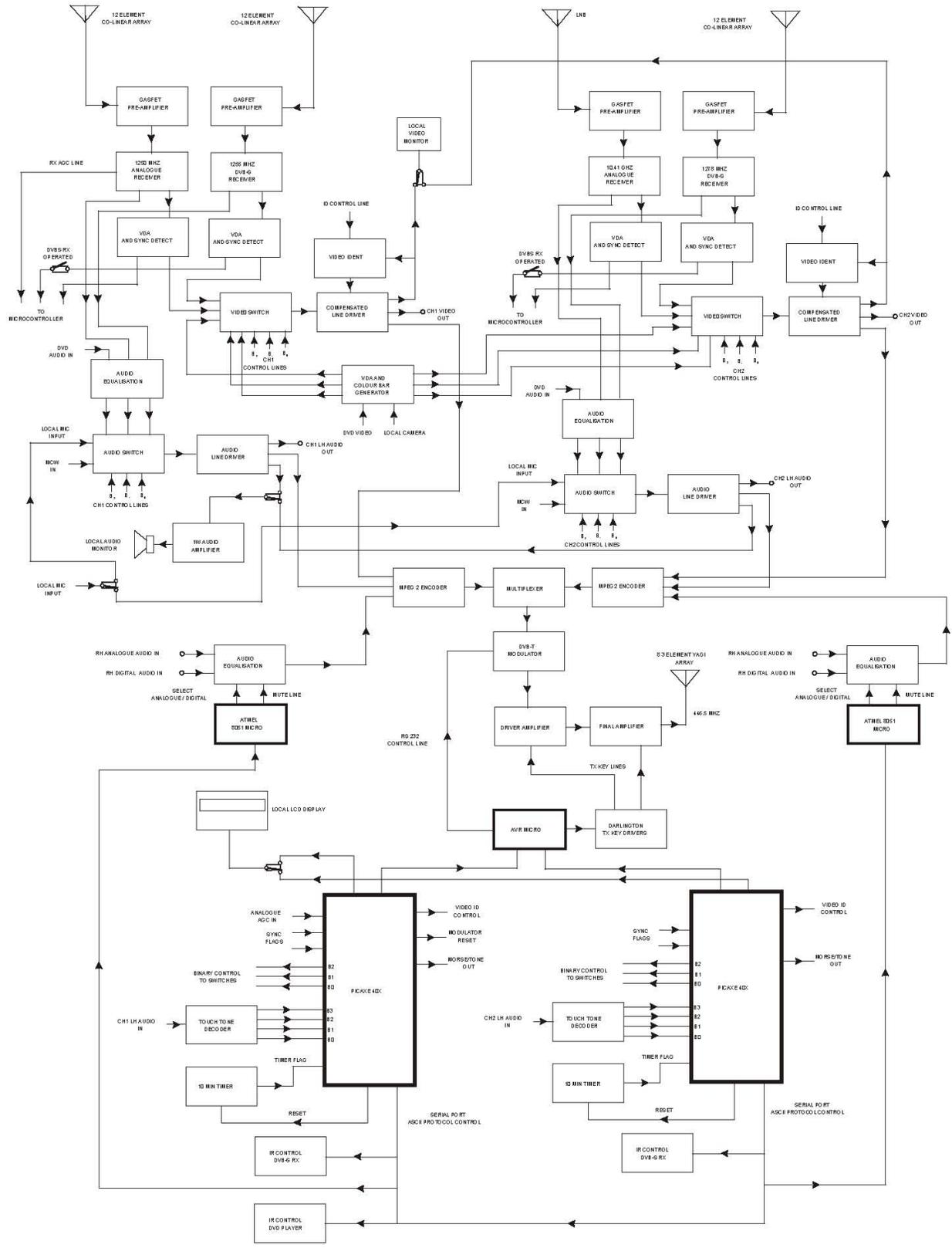
Mesh reflector mounted on back of loop antenna



The finished beam erected on top of the tower

Trevor VK3FTDX

Block Diagram of new Digital VK3RTV ATV Repeater



WANSARC VK3AWS

PRESIDENT: Graeme McDiarmid VK3NE vk3ne@wia.org.au

SECRETARY: Mark Stephenson VK3PI Telephone: 0400 443 218 vk3pi@optusnet.com.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.

Meetings

Meetings held at the Ern Rose Memorial Pavilion, SEAVER GROVE, RESERVOIR 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 like minded 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, WIA, ACMA, Melbourne Clubs, VK and Worldwide.

Club Nets

146.450MHz FM each Tuesday evening commencing 7.30pm local time.

More Information

Website: www.wansarc.org.au

Postal: WANSARC PO Box 336 RESERVOIR 3073

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

All editors' comments and other opinions in submitted articles may not always represent the opinions of the committee or the members of **WANSARC**, but are published in the spirit in which they were submitted; in any case anything stated is to promote interest and active discussion on club activities and the promotion of Amateur Radio in general. Contributions to **WANSARC** are always welcome from any part of the world.

You can either post material to the Post Office Box address at the top of this page, or email your submission to the editor direct at vk3ch@wia.org.au

Email attachments not to exceed 5 Mb in file size. Attachments of (or thought to be) executable code will not be opened.

Other persons or radio clubs may edit or copy out such as they like from the magazine but a reference to **WANSARC** is appreciated.

Other articles that are credited to outside sources should be asked for their permission if they are used.

While we strive to be accurate, no responsibility will be taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates, times and locations given for upcoming events should always be checked with a reliable source closer to the event – coming up on the **WANSARC Tuesday evening NET on 146.450 MHz starting at 07:30 pm Local** is recommended to discuss and confirm information and any dates.

The club website also keeps current information on planned events and scheduled meeting dates.

If not delivered within 7 days, please return to:
WANSARC P.O. Box 336 Reservoir 3073

“WANSARC NEWS”

Monthly journal of the

Western & Northern Suburbs Amateur Radio Club