



REPEATERS VK3RGV 2m
& VK3RGV 70cm
CLUB CALL SIGN VK3SOL

SHEPPARTON & DISTRICT AMATEUR RADIO CLUB Inc

Incorporation No. A6677
P.O Box 692 Shepparton 3632 www.sadarc.org



PRESIDENTS REPORT

cable was purchased and installed to the antenna and terminated into the radio room, Ben and his team of workers worked extremely hard to finish the installation prior to our club meeting, and may I say what a great job they all did, a very professional installation was completed.

Certificates of appreciation were presented to Kane and Ben at the last meeting for their effort in providing the Internet connection and installation; (see the photo in this newsletter).

Attached to this newsletter is your current membership renewal which is due on the 1st July 2006, membership fees are still the same \$20.00, those members that joined after the 31st January 2006 you do not need to renew your membership, however if you feel you would like to make a donation to the club, that is ok, in the big scheme of things the \$20.00 is not a big ask when you see what is given back into the hobby through your club membership.

Please note our Club AGM is set down for October 2006 and not July 2006, all positions will be declared vacant at our next AGM, if you feel you have something to contribute to the club and wish to be elected onto the executive a nomination form will be available in the August newsletter, I strongly urge all members to consider this invitation to be part of the executive.

Well your committee of management has been very active over the last 12 months since our last AGM, let me just outline some of what has been achieved. Total refurbishment of VK3RGV, Interference problem on the hill fixed, New Club Rooms, weekly club broadcasts on 2/80m, WIA rebroadcasts on Sunday's, monthly club newsletter, approx 350% increase in memberships, 4 life members, Club involvement in JOTA, RD Contest and Spring field day, internet connection, Amateur Radio exams and examiners, Club led project (no yet finished), IRLP project (yet to be completed), regular speakers at club meetings, Comm.'s Day, Regular Sausage sizzles prior to meetings at working bees, funded via the donation tin, these are just to mention a few of the achievements your management committee has achieved over the last 12 months, and all of this could not have happened with out the membership, well done to all involved.

With our Ham Fest not far

away, I am looking forward to a report from our sub committee at our next meeting, we all need to start talking it up on air and promote our up and coming Ham Fest, this activity basically funds the 12 months operation of our club, and allows the club to move forward and finance the ongoing commitment we have to our members and the hobby.

Next week I will be presenting McPherson Media Pty Ltd with a certificate of appreciation on behalf of our Club, it reads as follows, "In recognition of valuable contributions to the Shepparton and District Amateur Radio Club and for the connection of the Internet to our Club Rooms" after this presentation Ben has arranged an interview with Y weekly, a local Shepparton weekly newspaper.

What's on the horizon, Australian Jamboree 2007, negotiations are taking place with Vic Scouting as to what role our club can take part in this Australian event, approx 14,000 people will be participating in this wonderful event, I have offered the services of our club to provide the Radio Link with the rest of the world during this event, I hope to present full details of this event at the next club meeting, the Jamboree will take place in January for 10 days, also JOTA this year will be conducted out of our club rooms, our club rooms have been nominated as the official district Radio Station for JOTA, more on this, as the information becomes available. Also much has happened since our last club meeting with the progress of the IRLP Link, I believe we are not far away from having this link up and running. Les and Jacek will present a report at the next meeting re the progress of the IRLP Link.

You may have noticed that we don't have any minutes in the newsletter, our last meeting was declared an open forum, due to the fact that our secretary was held up, and was not in attendance until well into the meeting, I declare the meeting an open meeting and moved on, as we had Guest Speakers in attendance, all in attendance agreed that this was the most appropriate method in moving forward.

More work going on at the next meeting, from 10.00am in the morning of the meeting Kane, Ben and myself, and anyone that wishes to help, we will be installing the 80/40m dipoles on the wooden tower, all welcome.

Our Club Broadcasts on

Wednesday's 80/2m have been very active, we have had good support from the membership and also non members, its great to see the support, for those members that have not taken the time to check in on these nets please feel free to come up and say hi, you will be very surprised at the activity, 3.620mhz 7.00pm local time and 8.00pm local time VK3RGV every Wednesday.

I have attached a letter that I received via e-mail please have read, it speaks for itself

20-06-2006

To Whom It May Concern:

I Warren David Fritz VK4FJ being executor for the estate of Alan MaCaskill hereby approve of the following items being donated to the Shepparton and district radio club.

1 Kenwood TS520S Transceiver

830703

1 Kenwood Digital Display DG-5

730541

1 Kenwood remote VFO820

440792

1 Tented 580 Transceiver + mike

00692

1 FM.900 [complete unit]

1 Canon printer

1 assortment of Amateur Radio

books and Manuals

1 20amp Power Supply [modified]

These gifts from Alan's estate are to become the property of the Shepparton and District Radio Club. It may also be appropriate for a small plaque or something similar be mounted close to the station in memory of Alan.

The remainder of the equipment shall be made available for sale by the Shepparton and District Radio Club on there Comms day which is to be held on the 10-09-2006. All proceeds of this sale of equipment belonging to Alan Macaskill will be presented to either Clint Crout or Tania Devaney. Until the Comms day the equipment will be the responsibility of Danny Hender and Ed Roach. If any equipment remains unsold after the Comms day I will make a decision as to what happens to it.

Signed Warren Fritz

Last but not least, congratulations to all those new members with new call signs, its great to hear you all on air and your support to our club, keep up the good work

73s For Now Roger Conway
VK2RO

A scratch built S meter for FM900 *By Pascal Nguyen, VK2IHL*

The measurement of RSSI voltage related to the RF input of the FM900 is quite simple to achieve. The result might have difference values from one site to another due to test equipment, FM900 recipient and amateur handling.

Under -120dBm or 0.2uV, noise floor had affected the result.

Above -60dBm or 200uV, RSSI circuit is saturated. So the consideration of relative strength is bounding by mentioned limits.



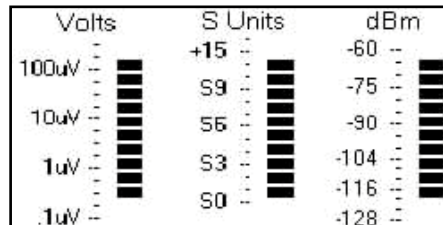
The writer's FM900 with bells & whistles, S6.

LM 3914 and bargraph led display were tested, breadboarded and prototyped on a strip of veroboard, point to point wiring. The trimpot 5k, arbitrary selected for the brightness of led, is adjusted for half scale deflection with a 1v2 nicad reference.

+10v Vcc is supplied via terminal "L".

Link S point on receiver board to rear speaker connector socket (spare pin 3)
Link pin 5 of LM 3914 to socket 601 pin 3 via a pi network of 10k and 0.001uF.

Made a connection with small coaxial cable (audio or RG 172) and 5 pin line plugs from control head SK 601 socket to transceiver speaker socket.

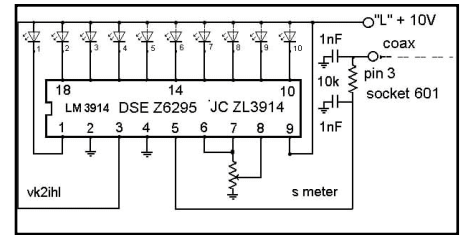


Relative bargraph led display to V,S,dBm

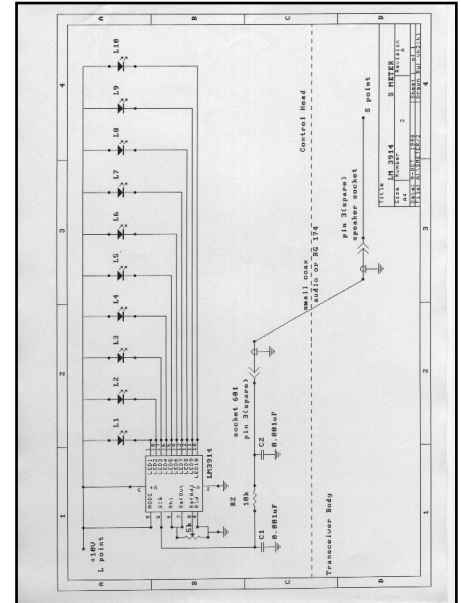
Despite the relative measurement of signal strength, the meter is quite satisfied to differentiate a 0.2 and 0.5uV signal.

There is another approach to display signal strength by reprogram EPROM to display RSSI data from IC402 A/D converter. Hope that tip will bring in another elegant design of FM900 metering from our members.

LM3914, 18 pin DIP is locally available from DSE Z6295 or JC ZL3914.



Schematic Diagram of LM3914 Voltmeter



Towards better operating procedures of Antenna matching and SWR, Incredible but true.

Standing wave ratio is a subject where there seems to be some rather strange ideas floating around and if you will bear with me, I will try to highlight some of the more current problems.

Looking back to previous days, most Radio Amateurs used a commercial receiver and an independent home constructed transmitter. The antenna feed line was generally coupled to the transmitter output via a two to three turn coupling link, or via a separate tuning unit, which was adjusted to produce the maximum possible antenna current. Only a select few actually possessed an SWR meter, because in those days, the demand for such items were limited and they were, in any case rather expensive.

In the immediate post war period, pandering to human laziness, manufacturers began to offer Auto focus Cameras and somewhat later, Solid State HF Transceivers where as with a CB rig, you could in principle just 'Press to Talk'. The only problem with these transceivers is that they were designed to work with a 50 OHM, non-reactive load. As a precautionary measure, many of them came already equipped with a built-in SWR Meter and you were warned that a reading in excess of 2.1 was to be avoided at all costs, because it could result in serious damage to the final amplifier stage. Antenna manufacturer's wasted no time in responding to these new requirements and they started to offer quite a wide range of antenna's designed specifically for use with 50 OHM coaxial cable. As a further precau-

tionary measure, most of the more recent solid state transceivers, incorporate as auto-protection circuit. With high SWR, they just wind down the output power to a safer level, maybe half the normal power or even less.

As you can see, the manufacturer's have tried their best to make life easy, but all the same, it is not a comforting thought that much of your available power may have suddenly disappeared, and this is only one of the problems, there are worse to come! High SWR inevitably produces increased feeder loss, so that in certain extreme cases, maybe only one tenth of your transmitter power might finally reach the antenna.

I had better give you a moment to search for a pencil and a piece of paper, because I intend to give you some factual emetics, I have made use of N6BV'S

competent LINELOSS computer program. If you have this program available, you will later be able to verify my findings and satisfy yourself that there is no exaggeration.

With most amateur installations, the SWR meter is either built into the transceiver or inserted in the OHM feed line at a point close to the transceiver output socket, where it is readily visible from the normal operating position.

I will refer to the reading given by this meter as the indicated SWR. I use this term because, unfortunately the reading may bear little relationship to the true SWR in the feed line running up to the antenna. With a long feed line, the reading can sometimes be deceptively low.

On the other hand, if there is RF flowing on the outside of the coaxial cable, the reading could be abnormally high. The only way you can discover the true SWR, is to make your measurements right up at the antenna feed point. Not very convenient maybe, because it means either climbing up your lattice tower, or tilting it over until the antenna is in a reasonable, accessible position. To convince you that such a procedure is necessary, I am to 'quote' an authentic and rather interesting situation. Pencils ready? Okay

At the annual junk sale, one of the local club members picked up a two-meter transceiver with a five-element Yagi. He decided to mount the two-meter antenna above his existing HF tri-bander, which was fed via a 1:1 balun with a 30 meter length of 50 OHM RG58A. For the initial, he removed the balun and feed line from the tri-bander and connected them to the terminals of the folded dipole radiator on the five-element Yagi. Down in the shack, he removed the feed line from his HF transceiver and with bated breath, he plugged it into the two meter transceiver.

To his delight, he found that the indicated SWR was about 1.35:1. This didn't seem too bad for a start so, later in the day, he joined the local two meter net and obtained quite a flattering signal report - 9+ and excellent modulation. He sought advice regarding the 1.35, SWR and most of the club members seemed to think that this was good enough at least for a start.

Continued page 3

Towards better operating procedures of Antenna matching and SWR, Continued from page 2
Incredible but true.

One of them stressed that beam manufacturer's are loath to guarantee a SWR of less than 2:1 and that this is generally regarded as the permissible upper limit. To get the true facts, let us now examine the situation in greater detail with the aid of N6BV'S computer program, newer programs are now available.

Computer analysis reveals that the 1.35 to 1 reading at the lower end of the fader is grossly misleading and that the true SWR in the feed line is in fact, not far off six to one, with a line loss of nearly ten decibels!, so only one tenth of the transmitter power is actually reaching the antenna and all the rest is going to waste. You could prove the truth of this 6:1 SWR by inserting an SWR meter right at the antenna feed point. The reason for the low SWR reading in the shack is because an SWR meter reads reflected.

The up going power is accentuated by 10db and any power reflected back from the antenna due to impedance mismatch, will be even further accentuated on its way back to the SWR meter in the shack. This explains why the reading on this meter is so deceptively low. Somewhat paradoxically, if you changed to a better quality low-loss feeder, although the radiated power would increase, the SWR reading in the shack would increase by a similar amount, because of the reduced line loss on the downward path. When a source and a load are correctly matched, there is, of course no reflected power at all and this is the one exceptional case, where a meter should read exactly 1:1, both at the upper and also lower end of your feed line, regardless of feeder quality or length.

This is the ideal situation, but it's not always

easy to come by. Now for a few words of consolation:

Line loss and SWR becomes less critical as we go lower in frequency. On 80 meters, for example, and SWR of 2:1 is almost inevitable at the band edges and need cause no alarm.

On the HF bands, many people these days use a linear amplifier, if it happens to be a vacuum tube linear, it will have both tuning and loading controls and will therefore be able to accommodate quite a wide range of impedances either side of 50 OHMS. The linear will, in fact, be acting as a buffer between the exciter and the antenna and up to 2:1 SWR could not in such a case have any adverse effect upon your solid-state transceiver, however, to avoid any illusions, I must stress that if your SWR meter happens to be placed between your transceiver output and linear input terminals, it will be responding to the linear input impedance and not to any SWR, which may exist in the antenna feed line.

Just to wind up this SWR discussion, I feel I ought to say a few words about the automatic tuning units, which are now quite often offered as an optional and rather expensive. If there is a high SWR in the antenna feed line, these are certainly capable of converting the rather complex impedance at the lower end of your feed line into something closely approaching 50 OHMS.

With a little personal effort, and at somewhat lower cost, a manual tuning unit could obviously fulfil a similar task. In both cases, this will prevent your transceiver winding down the output because of impedance mismatch, but it will not in any way improve the SWR

in your feed line, or reduce the feed line losses, which result from excessive SWR. If you don't believe me, try placing your SWR meter up at the antenna feed point. You will then realise, that there can be a certain amount of self-deception when you pin your faith on a tuning unit. If you will forgive me, I always feel that using a tuning unit is rather like burying your head in the sand, or sweeping the dust under the carpet. The only real solution to high SWR is to adjust the matching right at the antenna feed point. If you are scared of height, you could ask someone to install a remote-controlled tuning system, right at the top of your tower.

Collins already manufactures such a device for resonating the HF antennas on Passenger Airlines and a simpler model for amateur use is marketed by Hennig in Germany.

As a last resort, you could consider home construction. It's worth keeping in mind that even the most complex impedances can easily be converted to 50 OHMS with nothing more complicated than a coil and a variable capacitor.

I used a discarded windscreen wiper motor, which had the usual automatic reverse at the end of each stroke. For fine, slow speed tuning, a much reduced operating current was fed up the inner conductor of my feeder cable via a couple of RF chokes. Using this technique, I was able to tune a three-element CB antenna all the way from 12 metres through 11 metres and up to the 10 meter band.

VK3ALF.

Life Member SADARC

Club Room News



Top Left: Kane and Ben Receive Appreciation certificate from the President Roger for there dedicated efforts in supplying and installing the internet to the clubrooms at no charge. Top Right: The new antennae at the club rooms. Bottom Left: SADARC members listen intently as Bruce VK3UV gives a presentation and discussion on WICEN.

SADARC MEMBERS

Roger Conway VK2RO
 Jim Day VK2TWY
 Ray Hughes VK2ZOR
 Ed Roache VK3BG
 George Francis VK3HV
 Pat O'Shannessy VK3OV
 Bruce Plowman VK3QC
 Ray Wales VK3RW
 Rod Champness VK3UG
 Trevor Pitman VK3VG
 Warren Heywood VK3WH
 Peter O'Keefe VK3YF
 Hilton Younger VK3AHY
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 Jan VanKerkwijk VK3ALF
 David Waring VK3ANP
 Fred Kent VK3APA
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 Len Hearnes VK3BMY
 Ernie Harrison VK3BSD
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 Brian Webb VK3HBW
 Toby Corbett VK3HIV
 Mark Bennett VK3HMB
 Ian Sturman VK3JNC
 Dave Duff VK3JRA
 Neil Webster VK3KAL
 Rob George VK3KBV
 Barrie Halliday VK3KBY
 David Leonard VK3KDL
 Daryl Hitchcock VK3KL
 John Waters VK3PXJ
 Les Tatar VK3TEX
 Jacek Szczurek VK3TJS
 Ross Smith VK3UCR
 David Harms VK3XDJ
 Neil Watt VK3XNW
 Wayne Collyer VK3XQA
 Ray Gardiner VK3YNV
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 Norma Matthey SWL
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Shepparton And District Amateur Radio Club Inc.
 Sponsors of VK3RGV 2m/70cm and packet repeaters
 PO Box 692, Shepparton, Victoria 3632
 Incorporation No A6677



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Call sign/listener only

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.....Post code.....

Enclosed is my remittance for \$

Thank You For Your Valued Patronage

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SADARC Inc

WIA Member Y N

☐
☐

Those members who joined on or after 31st Jan 2006 their membership
 will continue till next year. But any donations accepted.

Life Members

Pat Oshannessy VK3OV ~ Max Johnston VK3DSF ~ Barry Halliday
 VK3KBY ~
 Jan Vankerwijk VK3ALF ~ Laurie Gleeson SK

Chips N Bits are giving 10% off selected products
 to SADARC Club members.



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154-156 High Street, Shepparton VIC
 Ph: 03 58222729 Fax: 03 58222042
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