

# THE PROPAGATOR. IARS

VOLUME 99/00    ISSUE Four    February 2000    Printed BI monthly    PRICLESSS  
Meetings 2<sup>nd</sup> Tuesday every month (except January) S.E.S Building montague street Nth Wollongong  
Starting 7:30pm. Official newsletter of the Illawarra Amateur Radio Society Inc. PO Box 1838 Wollongong.

Welcome to the last year of the 20<sup>th</sup> century. As this is the year 2000. Or is it?!! According to the calendar, we are using, it's the year 2000 but i seen a TV program on SBS TV late December on how time is measured. It was VERY interesting. The calendar that is used in the Jewish world it's the year 5760. In Afghanistan it is only 1993! The calendar used by the Inca's it's the year 2013. In Thailand it's the year 2543. One wonders if they had the y2k bug on there computers!!!!!! It looks like my computer is working OK but only time will tell.

I have ran out of MEMBERS PROFILES for printing in up comming news letters. I am asking for members to help fill this page. If i get NO replies i will leave the page blank!!! So come on you members and give me your profiles. This profile can be of any length. I was asked by some members it would be

good to know about some of OUR members and what they have done over the years.

In this issues there will be a page for the upcoming field day at Gosford. So if your thinking of going, get to this meeting and pay your money so a

## SOMETHING DIFFERENT

At this meeting it's bring a PLATE. No we are NOT SUPPLYING the SUPPER. We would like the members to! So get thinking and bring along a plate!!!!!! My heavenly pikelets will be there!!

bus can be arranged. I will be going as i missed out last year because of work but i will be there this year.

At this comming meeting, February 8<sup>th</sup>, we will have a great guest speaker. Mr. Ron Sanders. The topic will be "return loss bridge". His article, first published in AR is reproduced elsewhere in this newsletter. So I hope many members come along and find out more. About this subject.

At the December meeting Peter Naish vk2bpn drew the first SNOWBALL.

The number that came out, 29, was for Bob VK2MRJ. Sorry Bob that you where not there. So the SNOWBALL will be \$25 at this meeting. So come along and maybe you will be the winner!!!

The club outing in January was held on Saturday January 8<sup>th</sup>. A GREAT day was had by the 16 members that attended. The champagne corks where a popping.  
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This item first was published in AR in October 99. It is reprinted here with the permission of the author Ron Sanders VK2WB our guest speaker.

#### RETURN LOSS BRIDGE (RLB)

A return loss bridge is a very simple piece of test gear which is useful if you experiment with hf equipment and need to match impedances between components. It allows you to adjust your antenna system for best matching with very low levels of rf, unlike the normal SWR meter. This is particularly useful if you use an antenna tuner and wire antenna for multiband operation, or want to adjust a beam for best SWR. Return loss is related mathematically to reflection coefficient, which in turn is then related to VSWR. The bridge only indicates the magnitude of the reflection coefficient and does not show any phase angle. To use the 50 ohm bridge, it is necessary to have a 50 ohm rf source and a 50 ohm rf detector so that balance is retained. The test setup is indicated in Fig. 1.

#### THE BRIDGE

The bridge circuit is shown in Fig. 2. Since 51 ohm 1% resistors are commonly available I have used them in the bridge, and any reference to 50 ohms can be read as 51 ohms. This circuit is similar to a normal bridge circuit. If T1 is removed and an rf detector is placed between points A and B, the bridge will be balanced when a 50 ohm resistor is connected at Rx. Alternatively, if Rx is open circuit (infinite resistance) the bridge will be at maximum unbalance.

Since most rf detectors use an unbalanced input (normally a coax connector) it is not possible to directly connect such a detector between points A and B, as one of these points would be grounded and the bridge could never balance. T1 provides effective isolation from points A and B at hf frequencies, so that an unbalanced detector will not upset the bridge. This type of transformer is sometimes referred to as a "sortabalun". By providing 50 ohm attenuators (at least 10 dB) at the rf and the detector ports, the test setup requirements of 50 ohm sources are substantially met. In practice it is best to use a step attenuator between the output and the detector so that the bridge output signal can be adjusted for best indication. This attenuator should be adjustable from 0 to at least 60 dB, but should be set at not less than 10 dB in this situation.

Construction details for these attenuators are to be found in the ARRL and RSGB handbooks, AR and other publications.

One of the useful features of the return loss bridge is the relationship between the return loss and the value of Rx. Using purely resistive values of Rx the resultant VSWR is as shown in Table 1. As the value of Rx approaches the bridge impedance value of 50 ohms, the detector output approaches zero; i.e., maximum attenuation of the input signal. I have shown values for equivalent VSWR of 1, 2, 3, 5, infinity. The change in return loss is greatest near balance (VSWR = 1:1) and smallest for high values of

unbalance (VSWR > 2:1). The table in Fig. 2 lists how the VSWR is related to the return loss and clearly shows that the return loss changes are greatest as the VSWR approaches 1:1.

A 75 ohm bridge can be built using 75 ohm resistors and a 75 ohm rf source, detector and attenuators.

#### RF SOURCE AND DETECTOR

I used the rf source and detector provided with the YADDS Sweeper as it is calibrated in dBm (dB relative to 1 mW) which allows direct measurement of the return loss. Any signal generator capable of producing a signal on the desired frequencies will be adequate as an rf source and a receiver with an S-meter can be used as a detector. The results from using a dipper (g.d.o.) as the rf source and a receiver S-meter as detector are shown later. If using a dipper (or any other unshielded rf source) the remainder of the test setup must be shielded to prevent direct pickup by the detector.

#### A SIMPLE TEST SETUP TO CALIBRATE THE BRIDGE

Since most amateurs will not have the YADDS sweeper the following simple setup can be used to calibrate the RLB.

Connect the equipment as shown in Fig. 1.

If you are using a dipper as the rf source, make up a suitable coax lead with a single turn loop at one end to couple with the dipper coil. Provided you keep the arrangement physically fixed, the signal frequency

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and strength should be adequately stable. The 50 ohm attenuators shown in Fig. 1 must be retained in any test setup, since the rf input port and detector port of the RLB must be terminated in 50 ohms for correct operation.

Shielding of all equipment must be retained to prevent any direct pickup of the source by the detector.

1 If you use your receiver as the detector make sure that the Rx port of the RLB is open circuit, align the dipper and receiver to the required frequency and adjust the step attenuator to achieve an S 9 reading.

2 Connect a 50 ohm termination to the Rx port. Note the S-meter reading. Depending on the calibration of your S-meter the reading should be much lower (theoretically 0): e.g. < 1. This reading is your reference for an equivalent VSWR of 1:1.

3 Repeat steps 1 and 2 for the frequencies of interest to check that the bridge covers the hf range without any spurious responses.

4 Now connect a 100 ohm termination to the Rx port and repeat the above tests. This will give you a reference for an equivalent VSWR of 2:1.

5 Repeat with 150 ohm and 10 ohm terminations at the Rx port. These terminations will give you references for equivalent values of VSWR 3:1 and 5:1.

My calibration was done using a Yaesu FT747GX as the detector, and the S-meter readings will differ with other receivers

depending upon the manufacturers specifications.

The important thing is that there should be a big difference between the readings taken for an open circuit and a 50 ohm termination at the Rx port.

Results of calibration tests using the more accurate YADDS sweeper are shown in Table 1, and may be compared to those obtained using a dipper and S-meter shown in Table 1a. It should be remembered that we are usually looking for readings which indicate that the  $VSWR < 1.5:1$  (a common limit for network matching), and the actual reading is not so important.

#### PRACTICAL APPLICATIONS FOR THE RLB

1 Testing a 4MHz Low Pass Filter (LPF) designed for 50 ohm terminations.

The response of the filter is plotted in Fig. 3, and was obtained with the YADDS sweeper. The equivalent results using the simple test setup is shown in Fig. 3a. The filter was terminated with a 50 ohm termination on the output, the input being connected to the Rx port of the RLB.

The design requirement for this type of filter is to keep the VSWR below 1.5:1 for the pass frequencies.

Referring to the calibration data in Table 1a, you can see that for an S-meter reading of 6 the  $VSWR = 2:1$ . From the plot of Fig. 3a this occurs at 4.1 MHz. Above this frequency the VSWR rises and is essentially infinite (i.e. there is no measureable return loss) at 4.4 MHz. The line through S = 5 will therefore have a VSWR of about

1.5:1, and any frequency below this line will be within our VSWR limit.

2 Adjusting an Antenna Tuning Unit (ATU) for a Balanced Multiband Antenna System.

My ATU is a normal Transmatch type unit which feeds a centre-fed wire antenna via 450 ohm open wire feeders. The transmitter requires a 50 ohm load as is usual. Figs 4 and 5 show the resulting match obtained for the 20m and 17m bands at selected frequencies within each band. These plots were obtained using the YADDS sweeper in conjunction with the RLB, but useful results could be obtained using the simple test setup. The 50 ohm coax which normally connected to the transmitter was connected to the Rx port of the RLB and the ATU adjusted for the best match at the chosen frequencies. The plots for each band have been superimposed on the one diagram; e.g. 14.0, 14.2, 14.4 MHz for the 20m band.

Referring to Fig. 4 and the table in Fig. 2.

Curve 1 indicates the reference level (Rx is open circuit, equivalent to infinite VSWR) and is a straight line at about -29 dBm.

Curve 2 shows the results after adjusting the ATU for maximum return loss (i.e. min. VSWR) at 14.0 MHz. The maximum return loss is about 40 dBm below the reference level and corresponds to a VSWR of 1.02. Any return loss greater than 14 dBm is equivalent to a  $VSWR < 1.5:1$ .

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Page three.

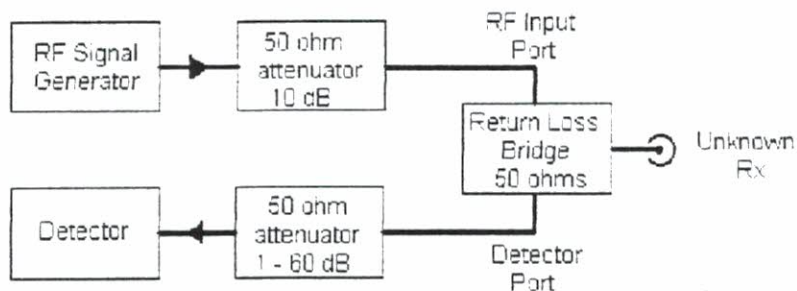
## CONSTRUCTION

The bridge is constructed in a small metal box with the 3 BNC connectors fitted to 3 sides. My box is made from tin plate (food container) and is approx. 40(w) x 40(w) x 25(h), and has a 40 x 40 x 5 lid. All corners are soldered inside the box and the lid is attached by small solder points to allow easy removal.

I have found that some die-cast boxes have protrusions on the inside surfaces and make it difficult to fit coax connectors.

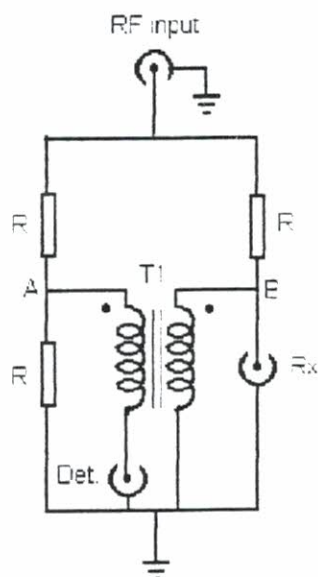
## CONCLUSION

The Return Loss Bridge is a very simple piece of test equipment which can provide useful information about matching problems. Some other simple pieces of equipment (e.g. attenuators and dipper) are required, but these are easily constructed and have been featured in past issues of AR and the various amateur handbooks.



## RLB TEST SETUP

Fig. 1



- R: 51 ohm 1%
- T1: 10 turns 30awg bifilar winding on Amidon FT-23-75 core
- Rx: network under test
- Det: rf detector
- All connectors BNC
- Keep leads short and use a metal enclosure
- Winding starts indicated by a dot

Return Loss dB	VSWR
1	17.4
2	6.65
4	4.42
6	3.01
8	2.32
10	1.92
14	1.60
20	1.22
25	1.12
30	1.07
35	1.04
40	1.02
60	1.002

## HF RETURN LOSS BRIDGE

Fig. 2

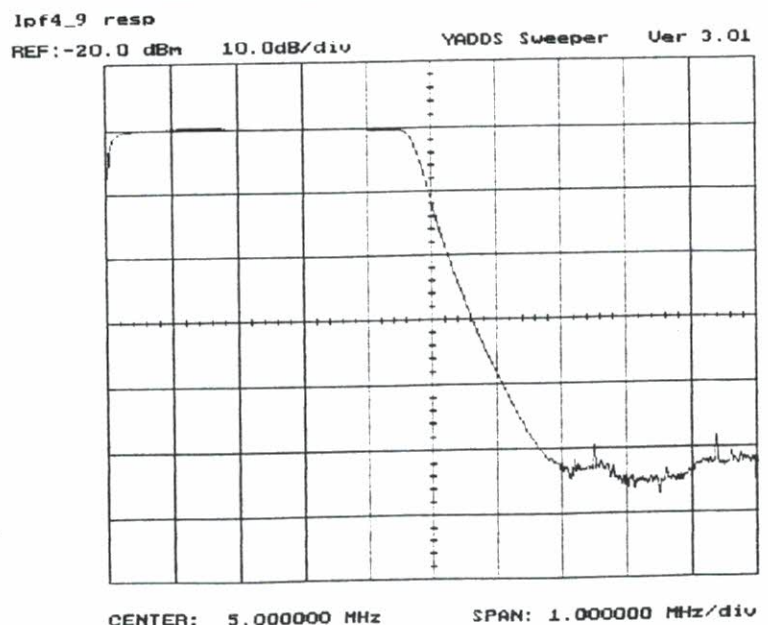


Fig. 3



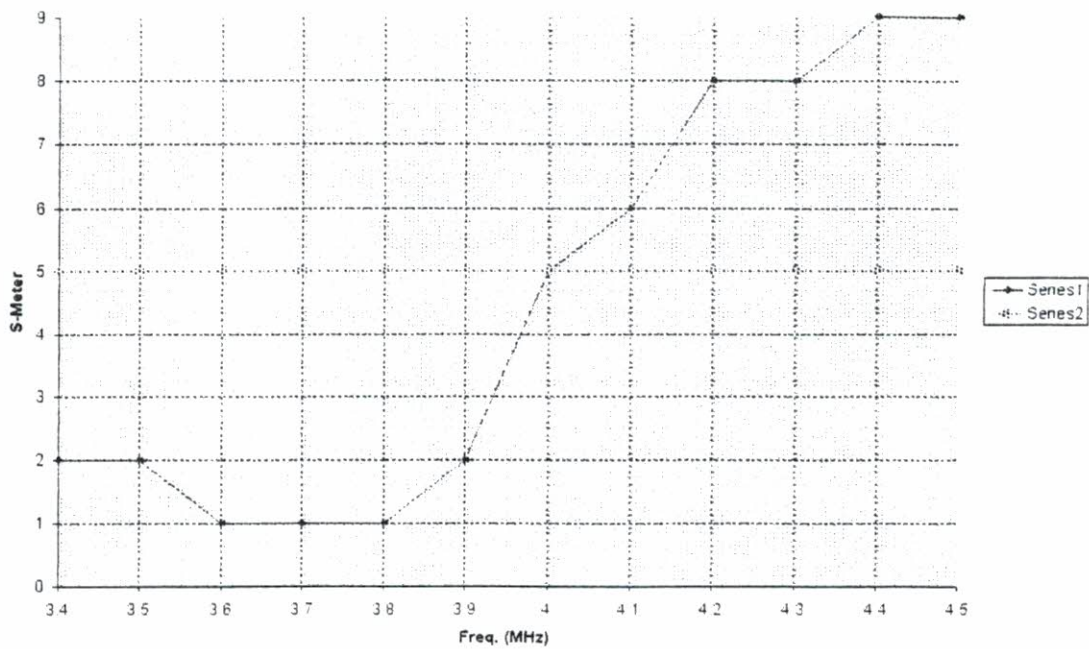


Fig. 3a

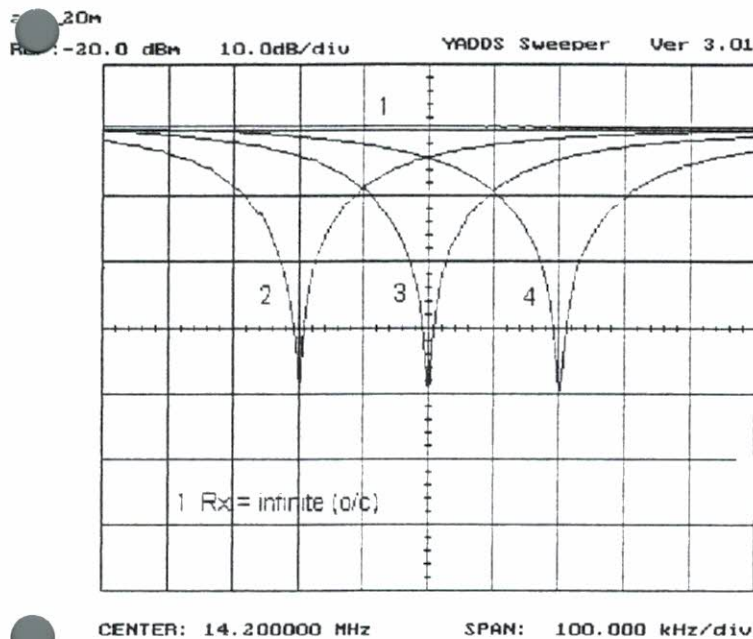


Fig. 4

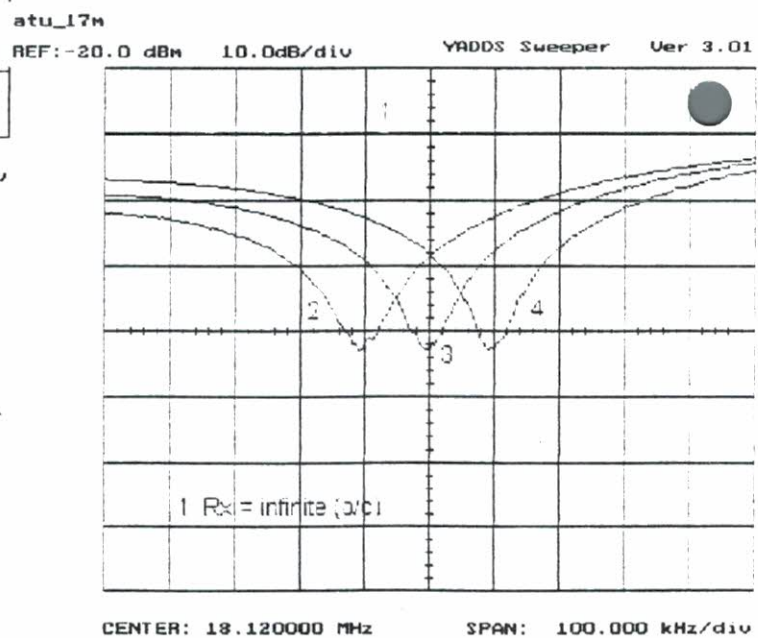


Fig. 5

FT-23-75, 10 turns 30 awg, bifilar, 51 ohm 1%, sweeper 3.01

#### Resistive Termination

Freq (MHz)	open cct swr = inf	50 ohms swr = 1.0	100 ohms swr = 2.0	150 ohms swr = 3.0	10 ohms swr = 5.0
1.0	- 0 dBm	-30.4 dBm	-10.5 dBm	-7.0 dBm	-3.0 dBm
2.0	0	30.7	10.5	6.9	3.0
4.0	0	31.0	10.5	6.6	2.9
6.0	0	31.9	10.5	6.9	3.1
8.0	0	32.0	10.4	6.5	3.0
10.0	0	31.0	9.6	6.0	2.7
12.0	0	32.0	9.9	6.0	2.9
14.0	0	30.9	9.3	6.0	3.0
16.0	0	31.7	9.3	5.8	2.9
18.0	0	31.7	9.2	5.9	3.1
20.0	0	31.2	10.0	7.1	3.7
22.0	0	31.3	10.3	7.4	3.8

Table 1

Using receiver S-meter readings for bridge detector. (Yaesu FT747GX)

#### Resistive Termination

Freq (MHz)	open cct swr = inf	50 ohms swr = 1.0	100 ohms swr = 2.0	150 ohms swr = 3.0	10 ohms swr = 5.0
1.0	S = 9	S = 0.5	S = 6	S = 7	S = 8
4.0	9	0.5	6	7	8
10.0	9	0.5	6	7	8
14.0	9	0.5	6	7	8
20.0	9	0.5	6	7	8

Table 1a

## Calling all amateurs

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you need

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# MEMBERS PROFILE

Lyle Patison vk2alu continued. Part two

Reminders of the achievements of the IARS Moonbounce Group in the 1970's and 1980's include the Australian Record, which still stands, for the contact on 1296MHz in 1985 between VK2AMW and G3LTF in England.

Lyle had maintained his interest in the higher microwave frequency of 10GHz over the years but, because of lack of others in the Wollongong area with a similar interest, it was the advent of Amateur Communication Satellites in the 1970's which next claimed his attention.

First came the reception of the beacon carrying Oscar 6, then, after construction of suitable equipment and antennas, contacts with local and overseas Amateurs via Oscar 7 between 1977 - 84 using satellite modes A,B and J, via Oscar 8 Mode J in 1978, via Oscar 10 Modes B and L (for which a 1.7 meter dish was also used) between 1983 - 91 and finally via Oscar 13 Modes B and L, 1988 - 91.

Meanwhile he had achieved his first contact on the 10GHz band by constructing "wideband" FM gear of 15 milliwatts output and using a 50cm dia. dish antenna which was operated portable from MT Gibraltar, in the Bowral area, in 1978 - with VK2BHC (now VK5ZO) on the north side of Sydney. Several such contacts with VK2BHC/P were carried out in 1979-80, over distances of up to 112km.

Serious operation on the 10GHz band commenced in 1989, when he built his first "narrowband" SSB/CW portable transceiver on 10368MHz, having an output of 25 milliwatts, followed in 1992 by construction of a "state-of-the-art" fully transistorised portable SSB/NBFM/CW transceiver which initially had an output of 200 milliwatts, this being increased to 1 watt in 1993 (to give an EIRP of 1 kilowatt from its 48cm dia. 30dB gain dish antenna).

This equipment has been used to carry out tests over the subsequent years (mainly with VK2ZAC of Sydney), both stations operating portable over paths of up to 218km in length and these were most successful, including the achievement of the then State 10GHz distance records for VK2 and VK1 (and still held for VK1).

Plans are now being made with VK2EI of Port Macquarie to attempt somewhat longer paths on 10GHz - using surface ducting over the coastal waters and "rainscatter" as a means of possible propagation over a "home-to-home" path.

In 1993, Lyle's two main amateur radio interests of microwaves and Earth-Moon-Earth path propagation finally came together, when, using what he had learned from his earlier experience of 432MHz and 1296MHz EME operation and from his construction of 10GHz gear for terrestrial operation - equipment was built to operate on 10368MHz from his home over the EME path

Lyle's first contact via 10GHz EME was made on 9/10/94, with WA7CJO, in Phoenix, Arizona - over a terrestrial distance of 12,600km (and some 700,000km over the actual EME path) - using 15 watts output to a 1.7m dia. dish antenna. This was the first ever Australian Amateur 10GHz EME contact and was over a new Amateur 10GHz record distance.



Much more sophisticated 10GHz EME equipment was then constructed over the next 2 years - using a 3.7 meter dia. dish antenna (kindly donated by a firm in Sydney) which had to be mounted on a homemade mobile trailer type unit (welding kindly carried out by Mike, VK2DFK) to allow it to be moved/towed, as is required for EME tests, from its "stow" location at the side of Lyle's house to a location on the front driveway, (with assistance kindly provided by 2 or 3 IARS members each time). Transmitter power output was increased to 25 watts (using a Travelling Wave Tube Amplifier Unit kindly sent out from UK by G3WDG) and the operators position is now under cover in the garage under his house.

The first 10Ghz EME contact using this remotely controlled equipment, was with G3WDG in Northants. England on 18/8/96, over the then 10GHz EME World Record terrestrial distance of just over 17,000km. (and still the Australian 10GHz EME Record) This was the first Amateur VK to G 10GHz EME contact (Is it, maybe, the first time that radio communication has been successfully carried out between England and Australia by anybody, not employing the assistance of a man-made satellite, and using a frequency in the Super High Frequency (SHF) part of the radio spectrum?)

Since then several more 10GHz EME contacts have been made with Amateurs in UK and USA and more are planned, hopefully also to include stations in Europe etc. which go to make up the small group of Amateurs currently operational worldwide on 10GHz EME. (about 20 or so) - but which, at this time, unfortunately, does not include anyone else in the southern hemisphere.

And for the future - well Lyle would like to get to operate on the 24GHz band and also to explore some of the less known aspects of microwave propagation.

There is still just so much more to learn.

Thank you lyle for this VERY interesting profile. Who wants to be next!!!!

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Minutes of general meeting held on 14<sup>th</sup> December 1999

Opened at 7:35 PM

Attend 32

In the Chair Rob VK2TNK

Apologies from: vk2's ZDM, AXJ, ZRF, ZLJ, AGB.

visitors: VK2APG, vk3zpz/2

Correspondence in: Subs from Brian withers (new member) Agenda items for vk2zrf, received after the conference. Ballarat 2/32 repeater group re-~~ra~~ffle, E mail from Owen Holmwood re linking into the 70cm network. E Mail from Ron Sanders re guest speaker at upcoming meeting.

News letters from: St. George, B.r.a.g , Morrabbin and district, Central coast.

Correspondence Out : E mail to Peter Naish vk2bnp re this meeting

Minutes of meeting being has read in the Propagator November 1999. Moved vk2ubf 2<sup>nd</sup> vk2zgw

Matters arising from: nil

Treasures report. \$ attached Moved vk2cav 2<sup>nd</sup> vk2ubf

Repeater report. Rob will be meeting the site owners at Maddens Plains on 15/12/99. Vk2ruw is at Robs still under going repairs. Vk2rmp 70'cm is working OK. Rob also spoke about a 10m fm gateway on 29120 possible linked to 2 meters.

General Business. Set date for a get together in Jan 2000 suggested dates 8<sup>th</sup> or 15<sup>th</sup>. If raining the meeting will be Jan15th if not meeting will be Jan 8<sup>th</sup>. John vk2kej expressed interest in becoming on the committee. Moved vk2tnk. He was elected unopposed.

The snowball was drawn by Peter Naish and it was vk2mrj's number that came out ,but as he was not there it goes to \$25 next meeting.

Peter also drew the raffle prizes. 1<sup>st</sup> Peter vk2hpr. 2<sup>nd</sup> vk2sx 3<sup>rd</sup> and 4<sup>th</sup> Wayne vk2tbf. After a great talk with question time by Peter Naish a very good supper was had by all. A great thank you goes to Simon's xyl Sharon. Not to many members went home with out a great supper.

Calls Books : Vk2's cav, wrj, kej, tth, ur, ezd, vwt, tnb, ubf, tnk, mt.

Committee meeting will be on December 22<sup>nd</sup> Meeting close : 8:00pm

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# Central Coast Field Day

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at Wyong Racecourse

Gates Open 8.30 am

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- See all major Radio and electronics equipment suppliers together under one roof with many dealers showing the latest offerings and great bargains
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- Scanning and Dx Listening displays and information
- Vintage and Historical Radio Exhibits
- Radio fox hunts
- Amateur television transmission Demonstrations
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- Free entry tickets to the New Australian Reptile Park
- Bring your picnic lunch or buy hot and cold food and drink from the stalls in the ground
- Entrance fee: Adults \$10.00, Seniors Card, pensioner concession, students \$5.00, Children under 12 free.

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## Ambulances become a packet more efficient.

A multimillion dollar communications network that tracks the location of ambulances and enables two-way data transmissions is being installed in south east Queensland.

The packet based wireless network will carry dispatch requests as well as information on the medical condition of patients in the care of Queensland Ambulance Service (QAS).

It should be operational in the Brisbane area by late next year.

A consortium led by Queensland based technisyst Computing will construct the network and provide all hardware and software. Other consortium members are mobile telecommunication giant Ericsson and network services specialist United Wireless. The contract for supply and implementation of the network is worth more than \$7 million.

QAS project co-ordinator Bill Delaney said the system would augment the service's voice network which, until now, had been the only method of communicating with the 350 strong ambulance fleet. "We needed a better way of communicating with our units when they were in the field," he said. "this enables us to know exactly where they are and more accurately assign them to emergency calls."

The QAS data network will be based on Mobitex wireless packet switching technology. This will allow ambulance units to be always online and instantly contactable.

Developed by Swedish telecommunications company Ericsson, Mobitex is widely used by

emergency services around the world to track and CO-ordinate activity.

Mr. Delaney said QAS had considered using public wireless data network, but had opted to build it's own. "The main reason was economics," he said. "At a certain usage level it just becomes more cost effective to build your own network."

He said having a service-specific custom-built network also removed the potential for emergency services to be disrupted by other types of Traffic.

Each QAS vehicle would be equipped with mobile data terminal (mdt) incorporating a GPS based automated vehicle location (AVL) device.

The initial phase of the network would incorporate five base stations spread throughout Brisbane and 30 terminal equipped ambulances.

This would be extended to 20 base stations and the entire fleet by the end of next year.

Vehicles would be tracked using the satellite global positioning system, with data relayed directly to headquarters in Brisbane.

Once the network roll out had been completed in Brisbane area, it would be extended to cover the Gold Coast and Sunshine Coast during 2001.

The network also had the capacity to carry other sophisticated applications in the future.

These could include more detailed data on patients condition and the transmission for pictures.

Thank you Ron vk2ur for this item  
For more information visit

[www.uw.com.au](http://www.uw.com.au) or

[www.technisyst.com.au](http://www.technisyst.com.au)

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Just for a laugh.

I don't know if this is true, but it's good reading!!!!

SOMETIMES IT TAKES A ROCKET SCIENTIST....

Scientists at NASA built a gun specifically to launch dead chickens at the windshields of airliners, military jet and the space shuttle, all Travelling at maximum velocity. The idea was to simulate the frequent incidents of collisions with airborne fowl to test the strength of the windshields.

British engineers heard about this gun and were eager to test it on the windshields of their new high speed train. Arrangements were made and a gun was sent to the British engineers.

When the gun was fired, the engineers stood shocked as the chicken hurtled out of the barrel, crashed in to the shatterproof shield, smashed it to smithereens, blasted through the control console, snapped the engineers backrest in two and embedded itself in the back wall of the cabin, like an arrow shot from a bow. The horrified Britons sent NASA the disastrous results of the experiment, along with the designs of the windshield and begged the U.S scientist for suggestions.

NASA responded with a one-line memo: "**thaw the chicken.**"

WHEN THE TABLES ARE TURNED.

An escaped convict broke into a house and tied up a young couple who had been sleeping in the bedroom.

As soon as he had a chance, the husband turned to his voluptuous,

young wife, who was bound up on the bed in a skimpy nightgown, and whispered, "honey., this guy hasn't seen a woman in years. Just cooperate with anything he wants. If he wants to have sex with you, just go along with it and pretend you like it. Our lives depend on it."

"DEAR," the wife hissed, spitting out her gag, "I'm so relieved you feel that way, because he just told me he thinks your really cute!"

LOOKS LIKE TO MUCH VIARGA TO ME!!!!!!!!!!!!!!!!!!!!

When Ralph first noticed his penis was growing larger and was staying erect longer,he was delighted as was his wife!

After several weeks and his penis was reaching 20" Ralph became concerned.

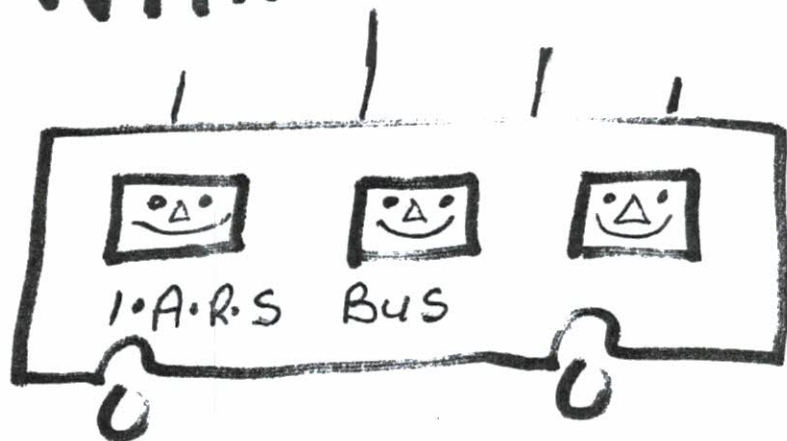
So they went to see a urologist. After an examination. The Physician explained it could be corrected by surgery.

"How long will Ralph be on crutches"? The wife ASKED. "CRUTCHES", why would he need crutches" responded the surprised doctor. "WELL" said the wife COLDLY."You are going to lengthen Ralph's LEGS aren't you? Thanks Harry vk2jhw for E mailing this to me.

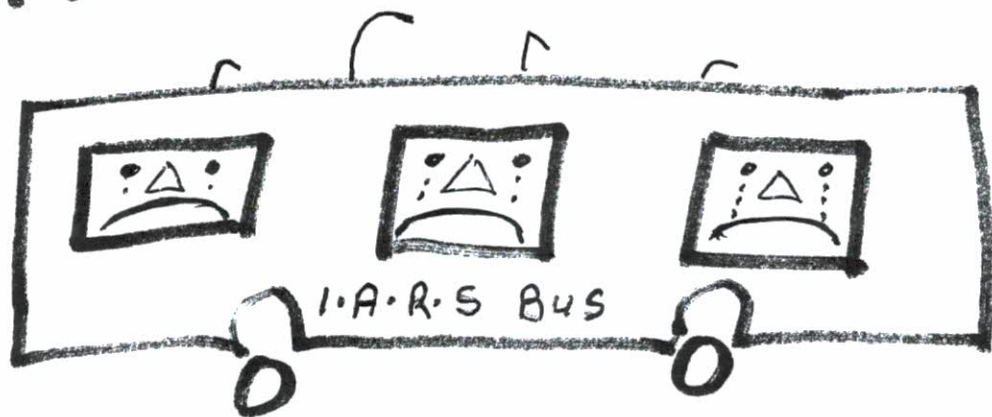
Don't forget the bus trip to Gosford field day. Give your name and money in at this meeting and hopefully a bus will be running this year. It's a GREAT day out with like minded friends. You never know you may come home with a BARGAIN. If not you will have some stories to tell.



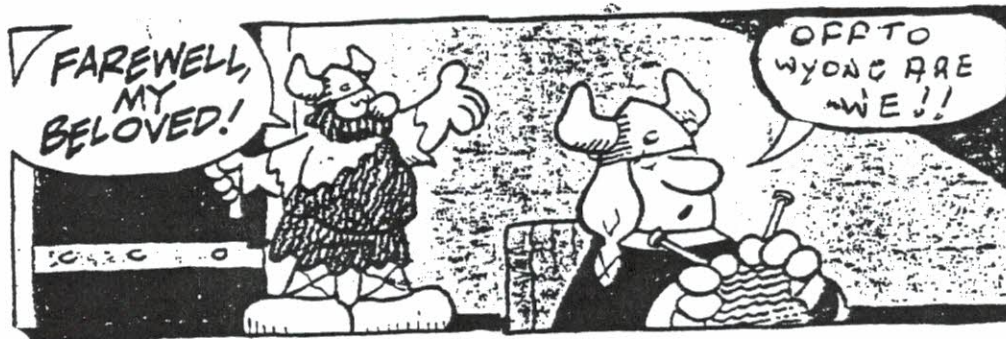
IF YOU WANTAA GO  
ON THIS



TO GOSFORD. YOU  
BETTA GET \$10 TO  
THE DRIVER AT THIS  
MEETING. OR THE



WILL  
NOT  
GO!!!



The BBQ was a sizzling. It was decided that we will do it ALL again but Not until APRIL. The date set was APRIL 8<sup>th</sup>, so put that down on your calendar **NOW**.


If it's raining that day the meeting will be held on the usual TUESDAY night. There will be a PROPAGATOR out before then to remind members.

Also at this BBQ some members asked about getting NAME tags so that we all know the names of the person sitting beside you. Ron VK2UR said he would get some information about these name tags.

At this point of time they will cost around \$6 BUT WE MUST GET AT LEAST 10 to get them at this price.

So get your name in and we will order them. When you order them KINDLY pay a \$3 deposit as NO MONEY up front NO NAME TAG.

The design will be something similar to other name tags. A sample is below.

 Illawarra Amateur Radio Society Inc	
NAME	CALL

### Y2k bug strikes AGAIN

To: Valued Employee  
 From: Human Resources  
 Date: January 1, 2000  
 Subject: Vacation Pay  
 Our records indicate that you have not used any vacation time over the past 100 year(s). As I'm sure you are aware, employees are granted three weeks of paid

leave per year or pay in lieu of time off. One additional week is granted for every five years of service. Please either take 9,400 days off work or notify our office and your next pay check will reflect payment of \$8,277,432.22 which will include all pay and interest for the past 1,200 months.  
 Sincerely,  
 Automated Payroll Processing.

Thank you John VK2XGJ for E mailing this to me. If you want to send me anything for the propagator my E mail Address is vk2ubf@fishinternet.com.au

I hope to see many members at this the FIRST meeting for the new year.  
 Propagator Feb 2000  
 Page 14.



# THE ILLAWARRA AMATEUR RADIO SOCIETY INC

PO BOX 1838 WOLLONGONG N.S.W. 2500 VK2AMW

## REPEATERS

0418661100.

CALL	FREQUENCY	MODE	LOCATION	LINKED TO
VK2RBT	146.675	VOICE	MT BOYNE	
VK2RMP	146.850	VOICE	MADDENS PLAINS	
VK2RMP	438.725	VOICE	MADDENS PLAINS	
VK2RIS	146.975	VOICE	SADDLEBACK MT	
VK2RUW	29.620	VOICE	KNIGHTS HILL (OFF AIR)	
VK2RUW	438.225	VOICE	KNIGHTS HILL	VK2RGN, VK1RGI

600K

RADIO COMMS

## PAKET RADIO

VK2AMW-1	144.725	GATEWAY	WOLLONGONG (soon)
VK2AMW-3	144.825	PAKET	KNIGHTS HILL VK2AMW-4
VK2AMW-4	144.925	PAKET	KNIGHTS HILL VK2AMW-3
VK2AMW-5	147.575	PAKET	MT BOYNE
VK2AMW-6	144.700	PAKET	MADDENS PLAINS
VK2AMW-7	147.575	PAKET	MT MURRAY

## SATGATE

VK2XGJ	144.700	BBS	DAPTO
VK2XGJ	147.575	BBS	DAPTO
VK2XGJ	440.050	BBS	(ROSE)
VK2XGJ	53.100	BBS	DAPTO

CLUB MEETINGS HELD 2<sup>ND</sup> TUESDAY OF EVERY MONTH EXCEPT JANUARY @ 7:30PM IN THE S.E.S. HQ MONTAGUE ST NORTH W'GONG.  
COMMITTEE MEETINGS HELD 3<sup>RD</sup> WEDNESDAY OF EVEN MONTHS.  
**MEMBERSHIP \$20 PA OR \$15 CONCESSIONS EXPIRING AFTER AGM.**

## COMMITTEE.

**PRESIDENT:** Rob Skelcher VK2TNK 4226.2909  
**VICE PRESIDENT:** Ted Hawkins VK2TTH 4257.2136  
**SECRETARY:** Brian Farrar VK2UBF 4267.2296  
**TREASURER:** Jim Christensen VK2CAV 4256.4761

**COMMITTEE:** Simon Ferrie VK2XQX, VK2BHO John Hodgkinson,

**REPEATER COMMITTEE:** Rob McKnight VK2MT, John Lodding VK2ZLJ, Chris Stevens VK2XBC, Brian Farrar VK2UBF, Simon Ferrie VK2XQX

**PUBLICITY:** Phil Howchin VK2TPH

**BROADCAST:** Brian Farrar VK2UBF 146.850, Rob Mc Knight VK2MT, Phil Howchin VK2TPH, Chris Stevens VK2XBC 438.225

**EDITOR:** Brian Farrar vk2ubf

**PRINTER:** Ted Hawkins VK2TTH

**CANTEEN:** Simon Ferrie VK2XQX

**LIFE MEMBERS:** Basil Dale VK2AW, Keith Curle VK2OB, Graeme Dowse VK2CAG, Lyle Patison VK2ALU, Rob Mc Knight VK2MT.

**Disclaimer:** All comments are those of the EDITOR and not of any committee or club member. All projects are presented as given and if any damage is done to your equipment the club is NOT responsible!

42753005

HANDLE WITH ENTHUSIASM



# THE PROPAGATOR

VK2AMW SINCE 1948

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If undelivered please return to PO Box 1838 Wollongong 2500.