

The Propagator



CLUB CALL VK2AMW
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NOW PRINTED EVERY THREE MONTHS
WORTH MORE THAN WATER
MEETINGS HELD SECOND TUESDAY OF EACH MONTH (EXCEPT JANUARY).
INDUSTRY WORLD VISITORS CENTRE, SPRINGHILL ROAD, CONISISON
THE PROPAGATOR IS THE OFFICIAL NEWSLETTER OF ILLAWARRA AMATEUR RADIO SOCIETY INC.
PO BOX 1838 WOLLONGONG 2500.
WEB PAGE - WWW.IARS.ORG.AU
E-MAIL- SECRETARY@IARS.ORG.AU
EDITOR- MAEVA BENNETT VK2HUG

Club Broadcasts for 2007 – Each Tuesday, except Meeting night, at 7.30 pm with Jack & Geoff

EDITORIAL

At the February 2007 Meeting I asked if there was a volunteer to take over the role of Editor of the Propagator. I am finding that being wife, mother, grandma, housewife, attending Craft Classes and the associated homework, IARS Club secretary and magazine editor taking all my available time and a lot allocated for sleep. The silence was deafening!

A compromise was reached....The Propagator will now be published every three months instead of monthly. To do the magazine justice and to make it a worthwhile read, it takes me many days to compile, print, preparing and posting in the snail mail and on the internet etc but the biggest challenge is finding technical articles that will be of interest. As a totally non-technical person, it is a task and a half. The articles either won't download properly or are miles too long to publish, and after doing it all are they of interest to the technically minded reader.

Thanks to those who do contribute, my grateful thanks....you make it far easier for me. For those who would like to see something that particularly interests them, please let me know a topic and I will get the relevant information for you and our readers, who are not only our immediate club members but to other readers who access the Propagator on the WWW.

I have decided to leave out the Monthly Meeting Minutes, and incorporate any information that needs to be passed on to members within the Propagator. If you want a copy please let me know and I will get them to you.

Maeva Bennett
VK2HUG
Editor.

THE ILLAWARRA AMATEUR RADIO SOCIETY INC EXECUTIVE AND COMMITTEE FOR 2006-07

President: Tony Stone VK2TS vk2ts@powerband.net.au Ph 0404 839 465
Vice President: Rob McKnight VK2MT mcknightr@winns.com.au ph: 0408 480630
Secretary: Maeva Bennett VK2HUG vk2aal@comcen.com.au ph: 4297 6065
Treasurer: John Lawer VK2KEJ ph: 4228 9856

Committee.

Jack De Cesco VK2XGD jack@newtek.com.au
Frank Diggle VK2FDIG
Boris Rewak VK2JJJ vk2jjj@tpg.com.au
Peter Reid VK2HPR vk2hpr@optusnet.com.au
John Bennett VK2AAL VK2HUG vk2aal@comcen.com.au ph: 4297 6065
Steve Benko VK2TSB steve@riverscomms.com.au

Fund Raising Committee. Peter Reid VK2HPR
Jack De Cesco VK2XGD

Propagator Editor. Maeva Bennett VK2HUG vk2aal@comcen.com.au
Publicity Officer.
Membership Secretary. John Bennett VK2AAL vk2aal@comcen.com.au ph: 4297 6065
Repeater Committee. Rob McKnight VK2MT, John Bennett VK2AAL
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Howard Booth

Howard Booth is a man of action and few words, unless he has a microphone in his hand. someone who has had a huge impact on Amateur Radio in the Illawarra.

Under his auspices, the Wollongong Amateur Radio Club was established in 1948, the Club was issued a station licence, VK2AMW, and he was the first President of the Club.

Howard Booth was brought up in the city of Sheffield, South Yorkshire, England, where he and his family lived up until the time that he, his wife and two sons emigrated to Australia - arriving in Wollongong in May 1948.

Howard had been interested in radio as a hobby since his tender years. He sat for and passed an examination in Morse Code at 20 WPM, (which was required before he could qualify for an Amateur Licence at that time) on 26th January 1923 - ie: at the age of 14 years! When Howard came to Australia, applied for an Australian licence and was issued the call sign VK2AMD, which he still has.

2008 will be a year of Celebration, in more ways than one in the Illawarra.

Our Club will be celebrating 60 years since starting in June and Howard will celebrate his 100th in March.

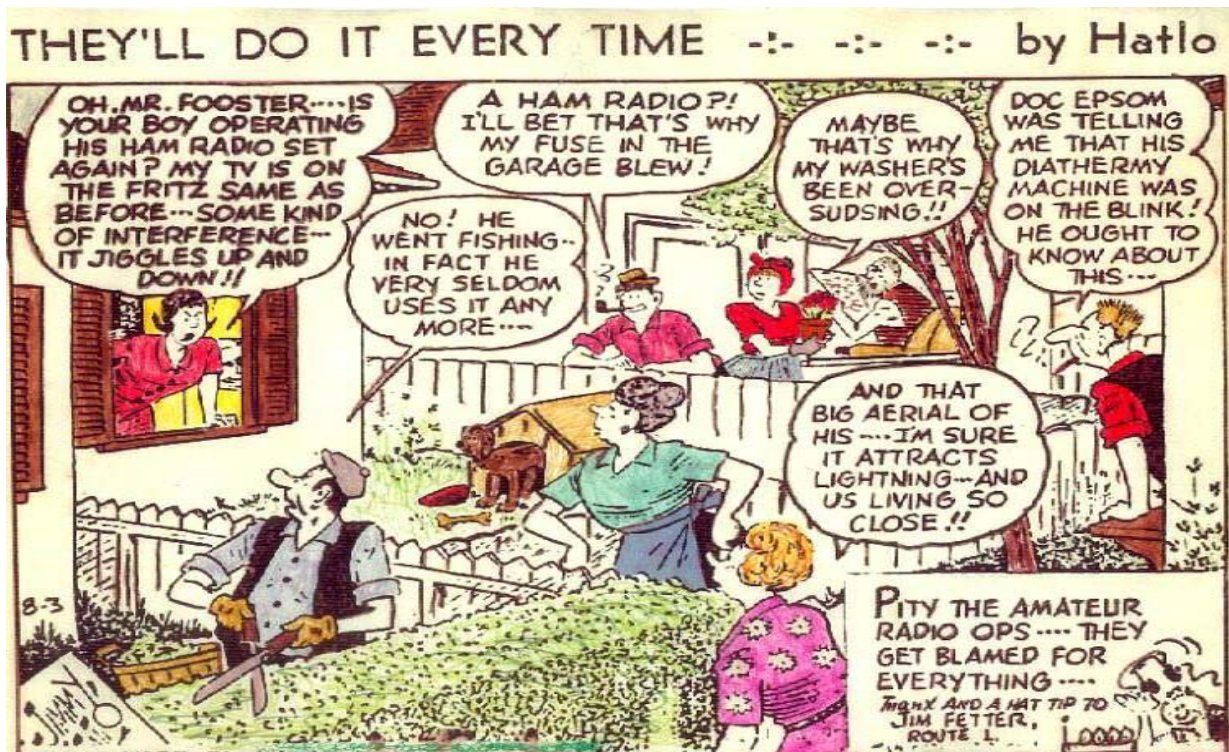
Howard must also hold the record for having an amateur licence for the longest time – 74 years and still going strong.

Still active on the radio, especially to his friends in Sheffield, Howard remains a resident of the Illawarra and must wonder what he started and has been built on by other interested Amateurs since his days as President.

Over the past 59 years, our Club has gone from its humble beginnings at the Gladstone Street Technical College, Howard's homemade transmitter "with ten bobs worth of spare parts" to become a very active and involved community throughout not only our local area but around the World with very modern and "store bought" but Ham modified equipment, and a 5 repeater network on many frequencies and bandwidths.

I wonder if in 1948, Howard would have thought that you can have Amateur Radio around the world through IRLP and Echolink, use it as easily as picking up the telephone, and being as clear as a bell, the friendships built on contact but never having met in person, the introduction of transistors rather than valves and the many other changes in Amateur Radio over the past 59 years.

From all the members of the Illawarra Amateur Radio Society, past, present and future, Happy 99th Birthday and thank you for your hard work and far sightedness back in 1948, to establish our hobby and our Club in the Illawarra.



R.C.S. NEW 1939 TROLITUL COILS

SPECIFIED AND RECOMMENDED IN THIS ISSUE

THE SKY HOUND SIX

The R.C.S. Kit for this new set comprises our new 1939 type Trolitul High Q Coils and Intermediates. The coils which contain necessary B/C and S/W trimmers, together with 3 section wave change switch and padder, are mounted on a rigid steel bracket. The L.F.'s are iron core for better quality, selectivity, and stability under all conditions. **SKY HOUND D/W COIL UNIT** CAT. No. K100. RETAIL PRICE £3/3/-

SPECIAL IRON L.F.'S FOR K100 RETAIL PRICE, each 10/6



R.C.S. TROLITUL TUNING COILS

R.C.S. new Trolitul Tuning Coils are highest Q yet produced. Being wound on and supported by a combined Trolitul former and base, they lend themselves to an accuracy and precision hitherto unobtainable, resulting in highest efficiency ever obtained. All coils are suitable for standard type valves.

DUAL WAVE COILS

B/C 1500 to 350 K.C. S/W 10 to 50 metres. Air Core Aerial Coil, 400 K.C. Cat. No. G19. Retail Price, 12/6. Air Core R.F. Coil, 400 K.C. Cat. No. G20. Retail Price, 12/6. Air Core Oscillator Coil, 400 K.C. Cat. No. G21. Retail Price, 12/6.

BROADCAST COILS

Air Core Aerial Coils, 400 K.C. Cat. No. E242. Retail Price, 5/6 ea. Air Core R.F. Coils, 400 K.C. Cat. No. E243. Retail Price, 5/6 ea. Air Core Oscillator Coils, 400 K.C. Cat. No. E244. Retail Price, 5/6 ea. Iron Core Aerial Coil, 400 K.C. Cat. No. E247. Retail Price, 7/- ea. Iron Core R.F. Coils, 400 K.C. Cat. No. E248. Retail Price, 7/- ea. Iron Core Oscillator Coil, 400 K.C. Cat. No. E249. Retail Price, 7/- ea. Permeability Tuned Aerial Coil, 400 K.C. Cat. No. E250. Retail Price, 7/6 ea. Permeability Tuned R.F. Coil, 400 K.C. Cat. No. E251. Retail Price, 7/6 ea. Permeability Tuned Oscillator Coil, 400 K.C. Cat. No. E252. Retail Price, 7/6 ea.



THE 2 J.U. SUPER SIX

SPECIFY THE NEW R.C.S. MIDGET CONDENSER. They are easy to gear. R.C.S. have designed a new Trolitul Beat Frequency Oscillator Coil to suit this receiver. Highest Q Coil made. Cat. No. P96. RETAIL PRICE ... 11/9

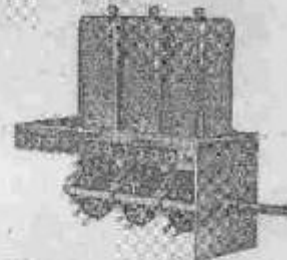
LITTLE JIM TUNING COIL

Specifically designed for and used in this set. Extremely high gain and selective. "Little Jim's" tuning coil. Cat. No. R20. RETAIL PRICE, 2/6. Post Paid. "Little Jim's" R.F. Choke. Cat. No. R21. RETAIL PRICE, 2d. Post Paid. "Little Jim's" Filament Transformer. Cat. No. T23. RETAIL PRICE, 10/6. Post Paid. "Little Jim's" Midget Condenser. Cat. No. G10. RETAIL PRICE, 2/6.



TROLITUL INTERMEDIATE TRANSFORMERS

The new R.C.S. Trolitul I.F.'s are extremely stable due to new method of construction, made possible by the use of Trolitul formers and base. No loose wires to shift and alter frequency. Possibility the best I.F.'s yet produced. Air Core, 1st, 400 K.C., 20 turns, 22 x 1 1/2 in. Cat. No. H107. Retail Price, 5/6. Air Core, 2nd, 400 K.C., 20 turns, 22 x 1 1/2 in. Cat. No. H108. Retail Price, 5/6. Iron Core, 1st, 400 K.C., 20 turns, 22 x 1 1/2 in. Cat. No. H109. Retail Price, 10/6. Iron Core, 2nd, 400 K.C., 20 turns, 22 x 1 1/2 in. Cat. No. H110. Retail Price, 10/6.



DUAL WAVE UNIT

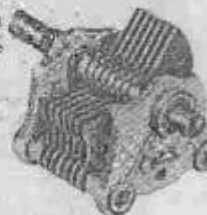
B/C 1500 to 350 K.C. S/W 10 to 50 metres. Aerial R.F. and Oscillator 400K C. Cat. No. DW21. Retail Price, 2/7 1/2. Aerial, R.F. and Oscillator 400K C. battery Cat. No. DW22. Retail Price, 2/3 1/2.

TROLITUL MIDGET CONDENSERS

R.C.S. Midget Condensers are made in two types, using Trolitul supports, thus guaranteeing practically no loss. The 14 plate units of six 22 plate capacity. The M.C. type may be changed.

STAR AND M.C. MIDGETS.

Max. Op. Vol.	Cap.	STAR	Price	M.C.	Retail Price	
mmfda.	mmfda.	Plates	Cat. No.	Cat. No.		
10	5	2	CV31	5/-	CV41	5/-
15	7 1/2	3	CV32	5/6	CV42	5/6
25	12 1/2	4	CV33	6/6	CV43	6/6
35	17 1/2	5	CV34	7/6	CV44	7/6
50	25	7	CV35	8/6	CV45	8/6
70	35	9	CV36	9/6	CV46	9/6
100	50	12	CV37	10/6	CV47	10/6



POTENTIOMETERS AND RHEOSTATS

The R.C.S. volume controls are the result of improved and new methods of manufacture together with alterations in design and final testing. Needless, they are constructed so as to cut off all volume.

Value	Type	Cat. No.	Price
5 ohm Rheostat	25 amp	PT10	4/0
15 "	25 amp	PT24	4/6
25 "	25 amp	PT25	4/6
50 "	25 amp	PT34	4/6
100 " Potentiometer	50 M/A	PT16	4/6
1500 "	25 M/A	PT17	4/6
2500 "	50 M/A	PT18	4/6
10000 "	20 M/A	PT22	4/6
15000 "	50 M/A	PT23	4/6
20000 "	10 M/A	PT24	0/-

Obtainable from your local dealer, or write direct to

R.C.S. RADIO PTY., LTD.

50 GLEBE STREET, GLEBE. Phone, MW2405

From Radio and Hobbies, First Edition April, 1939

If only we could have these prices again, but I suppose to buy the Pounds at a coin dealer, they probably wouldn't be much cheaper....Ed.

About RF

General physics of radio signals

RF communication works by creating electromagnetic waves at a source and being able to pick up those electromagnetic waves at a particular destination. These electromagnetic waves travel through the air at near the speed of light. The wavelength of an electromagnetic signal is inversely proportional to the frequency; the higher the frequency, the shorter the wavelength.

Frequency is measured in Hertz (cycles per second) and radio frequencies are measured in kilohertz (KHz or thousands of cycles per second), megahertz (MHz or millions of cycles per second) and gigahertz (GHz or billions of cycles per second). Higher frequencies result in shorter wavelengths. The wavelength for a 900 MHz device is longer than that of a 2.4 GHz device.

In general, signals with longer wavelengths travel a greater distance and penetrate through, and around objects better than signals with shorter wavelengths.

How does an RF communication system work?

Imagine an RF transmitter wiggling an electron in one location. This wiggling electron causes a ripple effect, somewhat akin to dropping a pebble in a pond. The effect is an electromagnetic (EM) wave that travels out from the initial location resulting in electrons wiggling in remote locations. An RF receiver can detect this remote electron wiggling.

The RF communication system then utilizes this phenomenon by wiggling electrons in a specific pattern to represent information. The receiver can make this same information available at a remote location; communicating with no wires.

In most wireless systems, a designer has two overriding constraints: it must operate over a certain distance (range) and transfer a certain amount of information within a time frame (data rate). Then the economics of the system must work out (price) along with acquiring government agency approvals (regulations and licensing).

How is range determined?

In order to accurately compute range – it is essential to understand a few terms:

dB - Decibels

Decibels are logarithmic units that are often used to represent RF power. To convert from watts to dB: $\text{Power in dB} = 10 * (\log x)$ where x is the power in watts.

Another unit of measure that is encountered often is dBm (dB milliwatts). The conversion formula for it is $\text{Power in dBm} = 10 * (\log x)$ where x is the power in milliwatts.

Line-of-site (LOS)

Line-of-site when speaking of RF means more than just being able to see the receiving antenna from the transmitting antenna. In order to have true line-of-site no objects (including trees, houses or the ground) can be in the Fresnel zone. The Fresnel zone is the area around the visual line-of-sight that radio waves spread out into after they leave the antenna. This area must be clear or else signal strength will weaken.

There are essentially two parameters to look at when trying to determine range.

Transmit Power

Transmit power refers to the amount of RF power that comes out of the antenna port of the radio. Transmit power is usually measured in Watts, milliwatts or dBm. (For conversion between watts and dB see below.)

Receiver sensitivity

Receiver sensitivity refers to the minimum level signal the radio can demodulate. It is convenient to use an example with sound waves; Transmit power is how loud someone is yelling and receive sensitivity would be how soft a voice someone can hear. Transmit power and receive sensitivity together constitute what is known as “link budget”. The link budget is the total amount of signal attenuation you can have between the transmitter and receiver and still have communication occur.

Example:

Maxstream 9XStream TX Power: 20dBm

Maxstream 9XStream RX Sensitivity: -110dBm
Total Link budget: 130dBm.

For line-of-site situations, a mathematical formula can be used to figure out the approximate range for a given link budget. For non line-of-site applications range calculations are more complex because of the various ways the signal can be attenuated.

RF communications and data rate

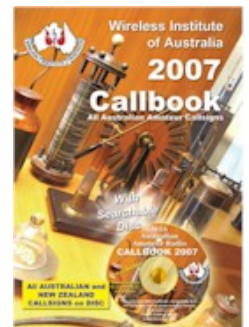
Data rates are usually dictated by the system - how much data must be transferred and how often does the transfer need to take place. Lower data rates, allow the radio module to have better receive sensitivity and thus more range. In the XStream modules the 9600 baud module has 3dB more sensitivity than the 19200 baud module. This means about 30% more distance in line-of-sight conditions. Higher data rates allow the communication to take place in less time, potentially using less power to transmit.

The 2007 WIA Callbook

The IARS has ordered multiple copies of the 2007 Callbook for members to purchase when they become available from the WIA

The cost will be \$25.00 per copy. As we have only ordered a small number, 15, please see Maeva Bennett if you wish to pre-order your copy.

This year the Callbook contains;
Over 700 new Foundation callsigns.
A full copy of the 06/07 New Zealand Callbook.
Pacific Island Callsigns.
Over 400 mb of Ham Software.



A Reminder Warning

A 26-year old person decided to have a cup of coffee. He took a cup of water and put it in the microwave to heat it up (something that he had done numerous times before).

I am not sure how long he set the timer for, but he told me he wanted to bring the water to a boil. When the timer shut the oven off, he removed the cup from the oven. As he looked into the cup, he noted that the water was not boiling, but instantly the water in the cup "blew up" into his face.

The cup remained intact until he threw it out of his hand but all the water had flown out into his face due to the build up of energy. His whole face is blistered and he has 1st and 2nd degree burns to his face which may leave scarring. He also may have lost partial sight in his left eye.

While at the hospital, the doctor who was attending to him stated that this is fairly common occurrence and water (alone) should never be heated in a microwave oven. If water is heated in this manner, something should be placed in the cup to diffuse the energy such as: a wooden stir stick, tea bag, etc. It is however a much safer choice to boil the water in a tea kettle.

General Electric's response:

Thanks for contacting us. I will be happy to assist you. The e-mail that you received is correct. Microwaved water and other liquids do not always bubble when they reach the boiling point. They can actually get superheated and not bubble at all. The superheated liquid will bubble up out of the cup when it is moved or when something like a spoon or tea bag is put into it.

To prevent this from happening and causing injury, do not heat any liquid for more than two minutes per cup. After heating, let the cup stand in the microwave for thirty seconds before moving it or adding anything into it. If you pass this on ... you could very well save someone from a lot of pain and suffering.

Simple test equipment to build

by Peter Parker VK3YE - first appeared in Amateur Radio, April 1997

FIELD STRENGTH METER

A field strength meter is perhaps the simplest piece of RF test equipment that can be built. Used for checking transmitters, antenna experimentation, and testing RF oscillators, field strength meters provide an indication of the presence of RF energy. They are not frequency sensitive and are useful where indication of a change in level is more important than the actual strength of the signal indicated.

Figure One shows a schematic of an RF field strength meter. Like a crystal set, it requires no power source. However, unlike a crystal set, the meter has no tuned circuit. It responds to signals of any frequency.

The meter works by converting any RF signal present at the antenna to a DC voltage. This voltage drives a meter movement to give an indication of relative RF. The meter includes a control to reduce its sensitivity where required.

Because it uses few parts, a printed circuit board is not necessary; components can simply be soldered to one another. However, a box is desirable for operating convenience. The case and aerial from a discarded toy walkie-talkie was used in the prototype (see photograph), though any small plastic case will suffice. The meter movement need not be large; we are only detecting the presence of RF, and not making precise measurements.

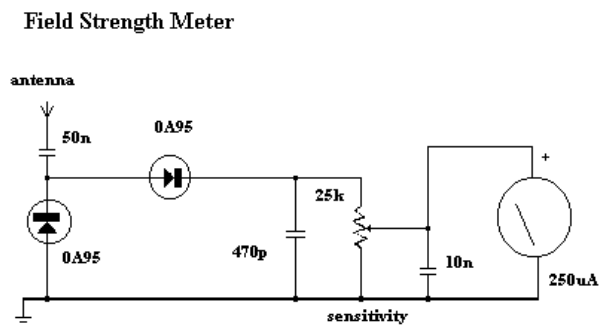
A meter from an old radio or tape recorder should work fine. The diodes can be any germanium type; the actual part number is not important. Germanium diodes can be recognised by their 6mm-long clear glass case with two coloured bands towards the cathode end. None of the component values shown are critical; a 50 percent variation would have little effect on circuit operation.

To test the operation of the meter, a transmitter is required to provide a source of RF. Placing the field strength meter's extended antenna near a handheld VHF rig should produce an indication on the meter, assuming that the sensitivity control has been set to maximum. No indication means that the meter is not working. Common construction errors include connecting the diodes or the meter wrongly and using silicon diodes in place of the germanium diodes specified. In this case, the meter will still work, but with reduced sensitivity. The earth wire is optional; when working with low-powered oscillators, it is useful to clip it to ground (of the circuit under test) to ensure a better indication on the meter.

Those without a transmitter can use an RF signal generator or crystal oscillator (such as that described later) for testing purposes. In this case, place the meter's antenna directly on the output terminal to verify operation. However, only attempt this with transistorised circuitry; component ratings and safety considerations make the meter described here unsuitable for poking around valve equipment.

The field strength meter is a useful instrument in its own right, but it can be made more versatile. Modifications include adding an amplifier (for greater sensitivity), including a tuned circuit (so it only detects signals in a particular band), or converting it into an RF wattmeter and dummy load. Circuits for such instruments are found in the standard handbooks.

Figure One



CRYSTAL TESTER

Figure Two shows the circuit of a simple crystal tester. It switches on a light emitting diode (LED) if the crystal is working.

The crystal under test is placed in an oscillator circuit. If it is working, an RF voltage will be present at the collector. This is rectified (converted to DC) and made to drive a transistor switch. Applying current to the base causes current to be drawn through the collector, thus lighting the LED.

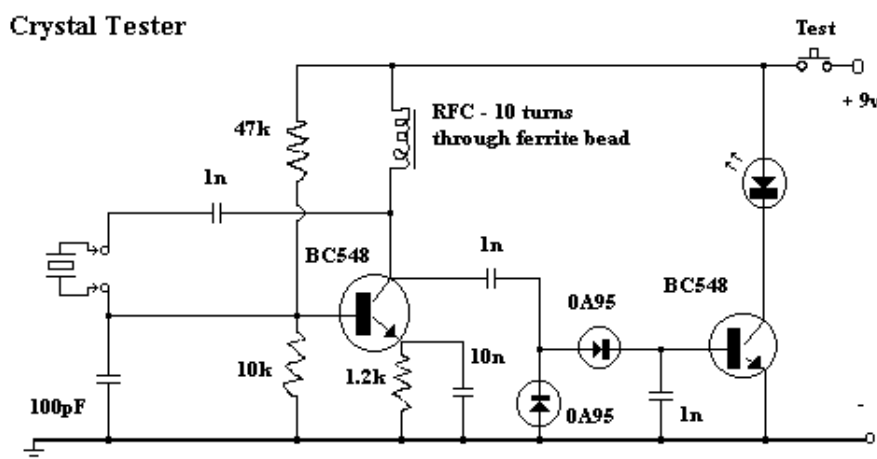
If an indication of frequency is required, simply use a general coverage receiver to locate the crystal oscillator's output. Note however that when testing overtone crystals (mostly those above 20 MHz) the output will be on the crystal's fundamental frequency, and not the frequency marked on the crystal's case. Fundamental frequencies are approximately one-third, one-fifth or one-seventh the overtone frequency, depending on the cut of the crystal.

The circuit may be built on a small piece of matrix board and housed in a plastic box. Alternatively, a case made from scrap printed circuit board material may be used. Either a selection of crystal sockets or two leads with crocodile clips will make it easier to test many crystals quickly. The RF choke is ten turns of very thin insulated wire (such as from receiver IF transformers) passed through a cylindrical ferrite bead. Its value does not seem to be particularly critical, and a commercially-available choke could probably be substituted.

The circuit can be tested by connecting a crystal known to work, and checking for any indication on the LED. A shortwave transistor radio tuned near the crystal's fundamental frequency can be used to verify the oscillator stage's operation. Note however that this circuit may be unreliable for crystals under 3 MHz, and some experimentation with oscillator component values may be required.

The crystal checker also tests ceramic resonators. Other applications include use as a marker generator for homebrew HF receivers (use a 3.58 MHz crystal) and as a test oscillator for aligning equipment.

Figure Two:



(c) 1998 VK1PK

CAPACITANCE METER

This project is more complex than the others described earlier. However, when finished, you will have an instrument capable of measuring all but the largest capacitors used in radio circuits. Unlike variable resistors, most variable capacitors are not marked with their values. As well, the markings of capacitors from salvaged equipment often rub off. By being able to measure these unmarked components, this project will prove useful to the constructor, vintage radio enthusiast or antenna experimenter.

The common 555 timer IC forms the heart of the circuit (Figure Three). Its function is to charge the unknown capacitor (C_x) to a fixed voltage. The capacitor is then discharged into the meter circuit. The meter measures the current being drawn through the 47 ohm resistor. The 555 repeats the process several times a second, so that the meter needle remains steady.

The deflection on the meter is directly proportional to the value of the unknown capacitor. This means that the scale is linear, like the voltage and current ranges on an analogue multimeter.

The meter has five ranges, from 100pF to 1uF, selected by a five position two pole switch. In addition, there is a x10 switch for measuring higher values and a divide-by-two facility to allow a better indication on the meter where the capacitor being measured is just above 100, 1000pF, 0.01, 0.1 or 1 uF.

Component values are critical. For best accuracy, it is desirable that the nine resistors wired to the Range switch have a 2% tolerance. If 0A47 diodes are not available, try 0A91 or 0A95 germanium diodes instead. Construct the meter in a plastic box; one that is about the size of your multimeter but deeper is ideal. The meter movement should as large as your budget allows; you will be using it to indicate exact values. A round 70mm-diameter movement salvaged from a piece of electronic equipment was used in the prototype. The meter you buy will have a scale of 0 to 50 microamps. This scale needs to be converted to read 0 to 100 (ie 20, 40, 60, 80, 100 instead of 10, 20, 30, 40, 50). Use of white correction fluid or small pieces of paper will help here.

The components can be mounted on a piece of matrix board or printed circuit board. Use a socket for the IC should replacement ever be needed. Keep wires short to minimise stray capacitance; stray capacitance reduces accuracy.

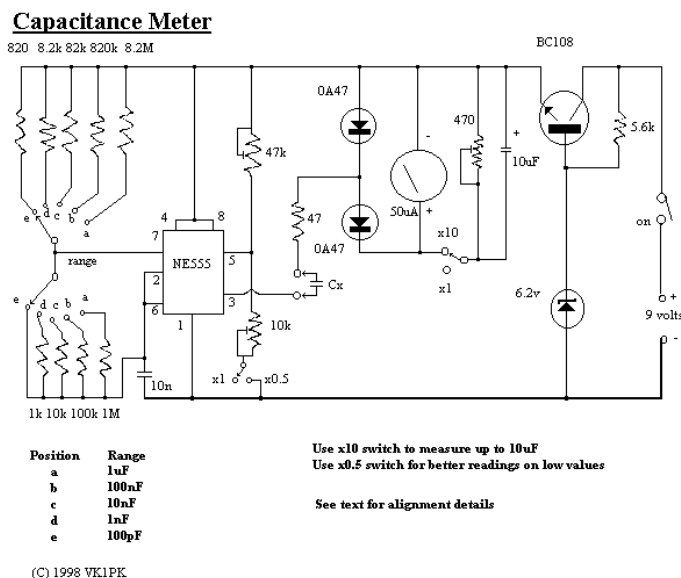
Calibrating the completed meter can be done in conjunction with a ready-built capacitance meter. Failing this, a selection of capacitors of known value, as measured on a laboratory meter, could be used. If neither of these options are available, simply buy several capacitors of the same value and use the one which is nearest the average as your standard reference. Use several standards to verify accuracy on all ranges.

To calibrate, disable both the x10 and divide-by-two functions (ie both switches open). Then connect one of your reference capacitors and switch to an appropriate range. Vary the setting of the 47k trimpot until the meter is reading the exact value of the capacitor. Then switch in the divide-by-two function. This should change the reading on the meter. Adjust the 10k trimpot so that the needle shows exactly twice the original reading. For example, if you used a 0.01 uF reference, and the meter read 10 on the 0.1 uF range, it should now read 20. Now switch out the divide-by-two function.

If you are not doing so already, change to a reference with a value equal to one of the ranges (eg 1000pF, 0.01uF, 0.1uF etc). Switch to the range equal to that value (ie the meter reads full-scale (100) when that capacitor is being measured. Switching in the x10 function should cause the meter indication to drop significantly. Adjust the 470 ohm trimpot so that the meter reads 10. Move down one range (eg from 0.01uF to 1000pF). The meter should read 100 again. If it does not, vary the 470 ohm trimpot until it does. That completes the calibration of the capacitance meter. Now try measuring other components to confirm that the measurements are reasonable.

With care, an accuracy of five percent or better should be possible on most ranges.

Figure Three:



REFERENCE

Hawker, P Amateur Radio Techniques, Seventh Edition, RSGB, 1980

FURTHER READING

A Guide to Test Equipment – Novice Notes August 2000

Today's scientific question is: What in the world is electricity? And where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an important electrical lesson.

On a cool, dry day, scuff your feet along a carpet, then reach your hand into a friend's mouth and touch one of his dental fillings.

Did you notice how your friend twitched violently and cried out in pain?

This teaches us that electricity can be a very powerful force, but we must never use it to hurt others unless we need to teach them an important electrical lesson.

It also teaches us how an electrical circuit works. When you scuffed your feet, you picked up a batch of "electrons", which are very small objects that carpet manufacturers weave into carpets so they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friend's filling, then travels down to his feet and back into the carpet, thus completing the circuit.

Amazing electronic fact:

If you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about, unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc. for granted, hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first Electrical Pioneer, Benjamin Franklin, who flew a kite in a lightning storm and received a serious electrical shock. This proved that lightning was powered by the same forces as carpets, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as,

"A penny saved is a penny earned".

Eventually, he had to be given a job running the post office. After Franklin, came a herd of Electrical Pioneers whose names have become part of our electrical terminology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. These pioneers conducted many important electrical experiments.

For example, in 1780 Luigi Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked, even though it was no longer actually attached to the frog, which was dead anyway. Galvani's discovery led to enormous advances in the field of amphibian medicine. Today, skilled veterinary surgeons can take a frog that has been seriously injured or killed, implant pieces of metal in its muscles, and watch it hop back into the pond just like a normal frog, except for the fact that it sinks like a stone.

But the greatest Electrical Pioneer of all was Thomas Edison, who was a brilliant inventor despite the fact that he had little formal education and lived in New Jersey. Edison's first major invention, in 1877, was the phonograph, which could soon be found in thousands of Australian homes, where it basically sat until 1923, when the record was invented.

But Edison's greatest achievement came in 1879, when he invented the electric company. Edison's design was a brilliant adaptation of the simple electrical circuit:

The electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then (this is the brilliant part) sends it right back to the customer again.

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and **NEVER GET CAUGHT**, since very few customers take the time to examine their electricity closely.

In fact, the last year in which any new electricity was generated in the Australia was 1937: the electric companies have been merely re-selling it ever since, which is why they have so much free time to apply for rate increases.

Today, thanks to men like Edison and Franklin, and frogs like Galvani's, we receive almost unlimited benefits from electricity.

For example, in the past decade scientists developed the laser, an electronic appliance that emits a beam of light so powerful that it can vaporize a bulldozer 2,000 yards away, yet so precise that doctors can use it to perform delicate operations on the human eyeball, (provided they remember to change the power setting from "**VAPORIZE BULLDOZER**" to "**DELICATE**").

Note: Original Author unknown
(Thanks to Brian Farrar, VK2AH, for this article.)

The Famous Funnies

The sunspots were roaring and the Old Dixer was working DX night and day.

The faithful XYL had had it with his QRZing and blew her stack.

"DX DX DX - thats all you ever think about!" she groaned

"Why I'll bet you don't even remember our wedding date!!

"I mostly certainly do" was the immediate reply.

"It was June 14th, 1958 – That's the night I worked the XT1, the CRØ, and the AC6!! -- By AC6V

"I am often asked how radio works. Well, you see, wire telegraphy is like a very long cat. You yank his tail in New York and he meows in Los Angeles. Do you understand this? Now, radio is exactly the same, except that there is no cat." __Attributed to Albert Einstein

Back when the telegraph was the fastest method of long-distance communication, a young man applied for a job as a Morse Code operator. Answering an ad in the newspaper, he went to the office address that was listed. When he arrived, he entered a large, busy office filled with noise and clatter, including the sound of the telegraph in the background. A sign on the receptionist's counter instructed job applicants to fill out a form and wait until they were summoned to enter the inner office.

The young man filled out his form and sat down with the seven other applicants in the waiting area. After a few minutes, the young man stood up, crossed the room to the door of the inner office, and walked right in. Naturally the other applicants perked up, wondering what was going on. They muttered among themselves that they hadn't heard any summons yet.

They assumed that the young man who went into the office made a mistake and would be disqualified. Within a few minutes, however, the employer escorted the young man out of the office and said to the other applicants, "Gentlemen, thank you very much for coming, but the job has just been filled." The other applicants began grumbling to each other, and one spoke up saying, "Wait a minute, I don't understand. He was the last to come in, and we never even got a chance to be interviewed. Yet he got the job. That's not fair!"

The employer said, "I'm sorry, but the last several minutes while you've been sitting here, the telegraph has been ticking out the following message in Morse Code: 'If you understand this message, then come right in. The job is yours.'" None of you heard it or understood it. This young man did. The job is his.



Club Membership Cards

2007 Club Membership cards will be issued at the monthly meeting. Please bring them to each meeting to borrow from the library and produce them to receive generous discounts from some suppliers.

Members are reminded that membership to the IARS is per financial year – 1 July to 30 June each year. Those that have not renewed their subscription by the 31st August will deem to be unfinancial.

The Propagator will only be sent out by mail to financial members.

Each year a new credit sized card will be issued, with a different colour code.





The Presidents Report

G'day this is Tony, VK2TS president of the Illawarra Amateur Radio society. It's good to be back for another year and hearing most of you on air in 2007.

Recent Events:

Well it was good to see many locals and those from further a field at the Wyong field day a couple of weeks ago. It was a most enjoyable day and in some ways a more social day than most expected. The deals were there, as were the usual crowds, and the weather was more forgiving than in the past.

So what's been happening at VK2TS, well not a lot really? I have made some improvements to the IRLP node such as adding the weather warnings and the regular club announcements. I will explore what other services and functions the node can provide our repeater users.

One thing I would like to do this year is fit a decent lightning protection system in conjunction with a good earth to prevent damage from Lightning strikes like the one I saw last Saturday afternoon. I had the internal storm antenna connected to my 2 metre radio and was receiving regular storm warning via our IRLP Node 6018. As I peered outside with a coldie in hand I witnessed a lightning bolt that hit the 33KV high voltage lines in the park across the road from me, and then arc to ground about 50metres away from my shack in a cloud of sparks and vapour. I thought that was a really interesting sight to see until a few minutes later when the xyl went to the house where she called me on the intercom to tell me the internet was down. Being the confident home network administrator that I am, I thought that will be a simple reboot of the power via the plug pack on the network switch. Unfortunately the network switch was dead. Alas the cheap and nasty unreliable switch mode plug-pack that powers it had turned its toes up. After mutilating the original plug-pack and one off a spare network switch I was back on air as was the IRLP node. I assume the wrath of Thor earlier was the culprit.

I would really hate to have to dig thru charred remains of my radio shack after a storm. I reckon mother nature has just warned me hi hi.

Lastly, please consider membership to our fine organization, we have been around since 1948 and would love to see your support and maybe even your company at some time at one of our meetings. Remember the club is a result of all the members who make a club like the Illawarra Amateur Radio Society a great group to be involved with.

Anyway that's enough from me, this is Tony VK2TS have a good one... 73's.

VK2TS
IARS Club President

Signs of our times.

Round like a shot

GOING to bed the other night, I noticed people in my shed stealing things.

I phoned the police but was told no one was in the area to help. They said they would send someone over as soon as possible.

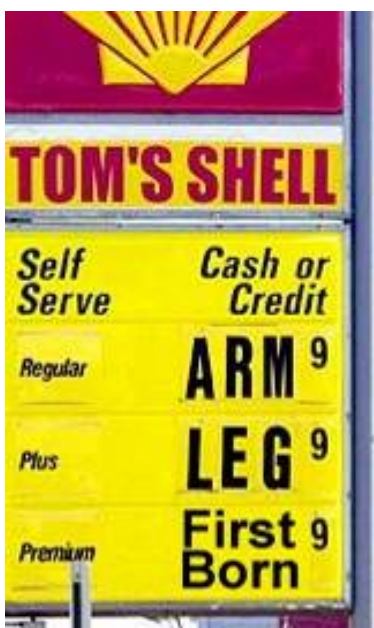
I hung up. A minute later I rang again. 'Hello,' I said, 'I called you a minute ago because there were people in my shed. You don't have to hurry now, because I've shot them.'

Within minutes there were half a dozen police cars in the area, plus helicopters and an armed response unit. They caught the burglars red-handed.

One of the officers said: 'I thought you said you'd shot them.'

To which I replied: 'I thought you said there was no one available.'

TONY GLADSTONE,





The Secretary's Desk

When you look at our membership, we are a very diverse bunch. Our backgrounds are all very different, some have always been locals, some have returned and some have moved to the Illawarra. Each of our members is very different - employment choices, family, cars, housing and lifestyles, but we all have one common thread, we are all "Hams".

I would like to highlight some of our members to thank them for their contribution not only to Amateur Radio but also to our Illawarra Community.

Jack and Michelle De Cesco, VK2XGD, take part in the Worlds Greatest Shave each year, in aid of the Leukaemia Foundation. They voluntarily shave their heads to raise money for this vital research to find a cure for this killer disease. The Leukaemia Foundation is the only national not-for-profit organisation dedicated to the care and cure of patients and families living with leukaemias, lymphomas, myeloma, and related blood disorders. The Foundation provides a range of free services for patients and their families, including: accommodation close to treatment centres for regional families, education programs, transport to and from the hospital, practical assistance



Jack will again be bald this year to assist this very worthwhile cause. He needs sponsorship; think about bringing an extra coin to the meeting to support Jacks efforts and raise his embarrassment level – you must admit it is not a flattering look – the grey hair is better, Jack, even if it is getting a bit thin. (I think I will have to make a rather large donation after that comment...lol)

Rob McKnight VK2MT and Simon Ferrie VK2XQX are involved with the Cub and Scouting Movement. Both of these members give up many hours of their personal time to assist young boys and girls reach their full potential. Scouting focuses on young people from six to 26 years of age and provides them with opportunities for fun and adventure as well as helping them to develop skills, gain self- confidence and learn teamwork and initiative.



Ted Thift, VK2ARA, devotes many hours to the promotion and development of Amateur Radio in Australia as a member not only of our IARS but as a past director of the WIA and currently as Club Co-Ordinator for of all radio clubs in Australia, as well as preparing future amateurs for their Amateur licence examinations. I also know Ted and his wife, April, are involved in their local community and Church activities. April is also involved with the Red Cross and Children's Hospitals, spending many hours knitting "Trauma Teddies" to be given to children that have to go to hospital, to reduce their apprehension and fear by giving them a friend to cuddle.



All our members, in some shape or another, assist others willing and freely. They offer advice, assistance and friendship to all they come in contact with - Paul Ferguson, VK2FE and John Hodkinson, VK3HBO and Brian Farrar, VK2AH, are great examples of this in our Club.

Many members make a club work, many hands make light work...get involve...make friends near and far.....Life is too short to stay at home and sit on the couch and contemplate your navel. Everything in life that is the best is free, enjoy it to the fullest.

Maeva Bennett

Repeater Report

- The receiver antenna on Saddleback Mountain, 149.975, has been repaired.
- The PA stage at Maddens Plains, 146.850, has been changed over, transmitting range is back to giving its normal good performance.
- The Gosford Link has had a frequency change, now tuned to 432.675 MHz + 123.0 Hz Sub-tone, (to avoid interference with lipids) which needs to be completed at Maddens Plains.

If you find any problems with Club repeats please contact us, so it can be investigated.

The Repeater Committee

About the Airwaves.

- 1 If you have any items you would like broadcast on Tuesday nights, please contact, Jack De Cesco phone on 42725134 VK2XGD 4227 1620 or at jack@newtec.com.au. If it interests you it will interest others, it's for the enjoyment of our members and other listeners.
- 2 Over the past few months, many members have changed their email addresses, as emails sent by the secretary have come back undeliverable. If you have changed your email address, could you please let the secretary know, so that our Member Registry is up to date.
- 3 Many thanks to Jack De Cesco at Newtek, for his monthly specials for our members. Thanks must also go to Jack for the Monthly Meeting raffle prizes, his choice is amazing and great value at the price.
- 4 Max Riley, VK2ARZ, must have the most frequent flyer points of anyone I know. Not only is he a great traveller but the things he does on his trips – adventuring and hiking etc would challenge the fittest man but with his limited sight, he is an amazing man. He is unfortunately just out of hospital after surgery, we all wish you a speedy recovery Max and that all has gone well.
- 5 Jacob Benko, VK2FIXX, is looking for a Club member to address his school with a talk on Amateur Radio, please contact Jacob if you are interested.
- 6 The Illawarra Historical Society is also looking for a Guest Speaker, if you are interested please contact Maeva Bennett, VK2HUG, for details.
- 7 Are you interested in attending a picnic at Cataract Dam? If so please contact Peter Reid, VK2NEL, to register your interest.
- 8 The March Meeting and every second month, thereafter, will be a normal month meeting followed by a hands on workshop for members attending.

The March Workshop will be convened by Paul Ferguson, VK2FE, who will instruct members on how to construct a **Trap Antenna**. Please bring your required materials as described by Paul in our weekly broadcasts.. Materials will be available on the night to those members who require it at a nominal fee to cover supply costs.

The May Meeting will be convened by John Bennett, VK2AAL, on **Test Equipment**. The workshop will be designed to teach new members what each apparatus is used for, how to use it and general tips for efficiency and accuracy. It will also be an opportunity to bring in your testing equipment and check its calibration and accuracy as well as discussing any tips and tricks you have picked up over the years and any quirks that may cause difficulty using that type of test equipment.

YOU KNOW YOU ARE LIVING IN 2007 when...

1. You accidentally enter your password on the microwave.
2. You haven't played solitaire with real cards in years.
3. You have a list of 15 phone numbers to reach your family of 3.
4. You e-mail the person who works at the desk next to you.
5. Your reason for not staying in touch with friends and family is that they don't have e-mail addresses.
6. You pull up in your own driveway and use your cell phone to see if anyone is home to help you carry in the groceries.
7. Every commercial on television has a web site at the bottom of the screen.
8. Leaving the house without your cell phone, which you didn't have the first 20 or 30 (or 60) years of your life, is now a cause for panic and you turn around to go and get it.
10. You get up in the morning and go on line before getting your Coffee.
11. You start tilting your head sideways to smile. :)
12. You're reading this and nodding and laughing.
13. Even worse, you know exactly to whom you are going to forward this message.
14. You are too busy to notice there was no #9 on this list.
15. You actually scrolled back up to check that there wasn't a #9 on this list