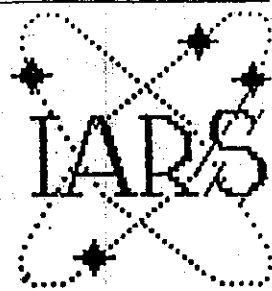


THE PROPAGATOR



ILLAWARRA AMATEUR RADIO SOCIETY

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY.
VOLUME - 87, NUMBER : 6 JULY 1987
REGISTERED BY AUSTRALIA POST PUBLICATION NUMBER : NBH - 1491.

MEETINGS ARE HELD ON THE SECOND TUESDAY OF EACH MONTH,
(EXCEPT JANUARY) AT 7.30.PM. AT THE STATE EMERGENCY SERVICES,
BUILDING, IN MONTAGUE STREET, NORTH WOLLONGONG.
VISITORS ARE MOST WELCOME TO ATTEND THE MEETING'S.

F.R.L. 3. BE IN IT.

NEXT LOTTO

-----*****-----
The next lotto (fund raising list No 3) will start with the first lotto draw in July (Monday 6th July). Come along to the July meeting and hand over \$25 (or part thereof).

This next scheme will run for twenty-five weeks (not twenty-six as before).

Members who were fully paid up on the last lotto scheme will be given preference for the same number they had in the last scheme, but it's strictly first-come first-served, so get in early.

These lotto schemes are our only means of fund raising - if you do not patronise them, then you cannot expect the club to provide YOU with the services you want (Repeaters, Propagator posted before the meetings, etc.)

BE IN IT TO WIN. F.R.L. 3.

Some members have not paid their LOTTO FUND RAISING fees and this makes problems with allotting numbers and prizes so please get your money in to Dave VK2VAV.

The first draw in the F.R.L. 3. is the first Monday in June 1987.

ANNUAL GENERAL MEETING

-----*****-----
The annual general meeting is the next Monthly meeting on 14th July 1987. Try to be there and help in keeping the Club active and well run.

NEW CLUB APPLICATIONS

Those members who have not filled in forms to join the reformed Club should have received forms with their Propagator. Anyone who hasn't a form can get one from Dave and fill it in before the July meeting.

NO XMAS FOR NOVICES:

In June Propagator we reprinted an item from Westlakes A.R. Club magazine stating that Novices could obtain other band privileges by applying to DOC.

This information was in error and the editors would like to apologise to any members or readers who were misled. In future all such items will be referred to DOC for confirmation.



EARLY START FOR COMMITTEE

-----*****-----
Committee members should try to be half an hour early at the JULY meeting as it will be necessary to hold a committee meeting before the annual general meeting to tidy up nomination of members to the new club IARS INC.

FEES ARE NOW DUE

FEES NOW DUE:

Dave VK2VAV/YKQ reports that quite a number of members are not financial and these members should pay now to avoid a joining fee after the new Club is formed on 30th JUNE 1987.

COMMITTEE MEETING :16/6

Graeme VK2CAG reported that he needed \$34 for repeater Xtals and that VK2DFE had donated some equipment for the VK2RAW rebuild.

Also that a new pager TX had been on test at Sublime Point causing de-sensing of VK2RIL 2 metres. The operators of this service are being co-operative on the fitting of filters and it is hoped to have a working arrangement with them to our mutual benefit.

Graeme also reported that on VK2RAW repeater the tech had cleared a second fault on a nearby link service and that there was now no QRM on this repeater. Thanks for the actions of DOC and the tech involved were expressed and Keith VK2OB was appointed as DOC liaison person to maintain a good understanding between the Club and the department.

FANCY THAT

Malayalam, a language spoken in Southern India, is the only name of language that spells the same backwards.

Dont make expensive mistakes by buying blind
What should you expect as a minimum when
purchasing an IBM compatible?

- * Dual speed 4.77MHz & 8MHz
- * 8088-2 Processor
- * Fully socketed Mother Board
- * Socket provided for 8087 arithmetic chip
- * Eight Expansion slots (2 should only be occupied)
- * Extra sockets for ROM's
- * Minimum 640K on Mother Board
- * 135w Power Continue output
- * Built in cooling fan
- * Centronic parallel printer port
- * 2 RS-232 serial Communication port (you will probably end up with a Modem & Mouse or A/D card etc)
- * Joystick Port
- * Dual floppy Controller
- * Battery backed clock/calendar
- * Legal Bios eg. ERSO
- * 2 Quality Floppy Japanese Disk Drives as used in Sperry, IBM, Olivetti etc .
- * An on site Warranty & Insurance must be available from Computer Shield or Hills Industry (Nationally protected). If these companies dont offer maintenance on the machine you are purchasing then forget it, Companies only offer maintenance contracts on machines they believe are reliable.

PHONE J.E.E. SOLUTION SELLERS.

We have been selling Computers since 1979 as a family run business where Personal Service is a —(PRIORITY)—

Mon - Fri 7.30-9.30pm. Phone:(042)61-5451.

OPEN FOR BUSINESS ALL WEEK END

REPEATER REPORT - GRAEME VK2CAG

I.A.R.S. Repeater report for July 1987.

Last month's repeater report.

The repeater report in the June issue of the Propagator created considerable controversy one way or another. Quite a lot of the information contained in the report relating to pager interference became irrelevant by the time the Propagator reached the members, because action had been taken by DOC in the two week period from when it was written to the time when it arrived in members mail-boxes.

I am happy to say that the pager interference to channel 6850 has been eliminated, and in the case of 7275 it has been reduced greatly. All this is a result of the work carried out by our local office of the DOC. The interference remaining on 7275 shows up only as occasional triggering of the repeater on the tail end of a pager transmission, causing the repeater to occasionally ident. A bandpass cavity filter has been fitted to the receiver of the repeater but no improvement noticed.

A new pager transmitter has recently been installed at Sublime Point adjacent to 7275. Severe de-sensing of 7275 repeater occurs when the pager keys up. Weak signals into 7275 will disappear for the duration of the pager transmission, and very strong signals will become noisy. This problem has occurred in the last month since the last repeater report was written, and has not been mentioned before in the Propagator. The operators of this new pager are being very co-operative with the repeater committee in attempting to eliminate the problem. At this time of writing, they have installed a notch filter on the pager, and we have installed one on our repeater, but the de-sense has been reduced from 30db to 20db, still far from satisfactory. We are still working with the pager company towards a solution, so in the meantime its best to avoid using 7275 in business hours when pager activity is highest, to avoid being cut off in the middle of a QSO.

Mt. Murray.

on 22/6/87 during high winds, the top Western guy wire snapped causing weak and varying signals from 6850 repeater while the aerial was waving about in the wind. Temporary repairs were done quickly by Fred VK2FCP until a working party could be organised to do a permanent job. On Saturday 27th a working bee was held at Mt. Murray, and the following work was carried out:

- The main mast was lowered and a new and better type of insulated guy ring was fitted, using proper nylon thimbles to terminate the Debeglass guys.
- The aerial on the packet digipeater was replaced with an extended Ringo, and the entire co-ax cable run replaced. The original cable was part of the old split-site repeater of some 10 years ago.
- Two cavity notch filters were installed in the digipeater feedline and tuned up to give better isolation between the two repeaters. The result was zero de-sense to 6850 from the digi, and a reduction from 10db to 2db desense to the digi from 6850 transmitter. This level of isolation is very satisfactory and users of each repeater will not be aware of any interference between the two.
- The cubicle was measured up to enable work to commence on the cabinet and equipment rack for the new 6850 repeater.

It was a great turn-out for such a freezing cold windy day. Thanks to VK2EXN, VK2BIT, VK2FCP, VK2TPH, VK2XGJ & VK2KHE for a great effort.

REPEATER REPORT CONTINUED PAGE 11.

MOBILE WHIP CONSTRUCTION DETAILS

DOUG. PANNELL,* VK6EP, VK6SP/Mobile

The author has many requests for details of the techniques he has used with success in constructing mobile helical whip antennas. He has now provided the information in this article so that all who are interested in building their own mobile antennas may benefit from his experience.

This information applies to the whips at present in use.

Details may vary somewhat from car to car, but the fundamental requirement is that the antenna must be resonated on its operating frequency by monitoring that frequency whilst energising with a grid dip oscillator (via a link at the antenna base).

All the whips are wound on standard 6-foot solid fibre glass fishing rod blanks. Start with a spool of tough enamelled wire in excess of $3/4$ wavelength long, as listed in Table 1.

Set up a winding area, preferably clamping a large hand drill in a vice and providing a rest (or steady) for the rod. A stand for the wire spool should be about five feet away and allow for the four feet travel (the length of the longest winding) with ease.

Fit the sleeve and apply a quantity of Loctite to the base and sleeve bore. Tap the sleeve on until the ends are flush and add more

Loctite as it wicks down. Set aside for the chemical action to occur.

While waiting, measure the rod and make marks with a ballpoint at the winding terminations. Mark up the extra 3" for the braid tip, obtain a length of braid from a similar sized co-ax., clean the enamel from an inch of wire, wrap several strands of the braid around the wire and carefully solder, remembering that the braid has to be stretched and cemented in place. This can now be done.

The wire could be soldered after attaching the braid, but fibre glass is susceptible to heat and if the braid is fastened to the rod before soldering the resultant burning of the rod may cause embrittlement and fracture, so be careful.

Before commencing winding, attach several 2" lengths of masking tape to a convenient edge for quick accessibility. Secure the assistance of a friend (even an XYL). Pip the rod top off above the 3" length of braid, after the cement has set and fit in the drill chuck.

Set up the steady just beyond the end of the close wound mark, adjust the position of the spool stand, wrap two turns of masking tape around the braid to support the soldered joint, and with a clove or soft clamp to hold and guide the wire,

commence winding.

Allow the wire to roll between the fingers for the first few turns, gradually applying more pressure and letting the wire roll hard against the preceding turn. If trouble develops, wrap a turn of tape on quickly.

Wrap the termination of the winding with two wide-spaced turns of tape forming a guide through which the wire is pulled to remove turns. Remove from the chuck after wrapping a few wide spaced turns down the sleeve and adding a turn of tape. Fit the sleeve in the mount, which preferably is on the sunvisor or a bar over the roof, and lay the spool on the roof.

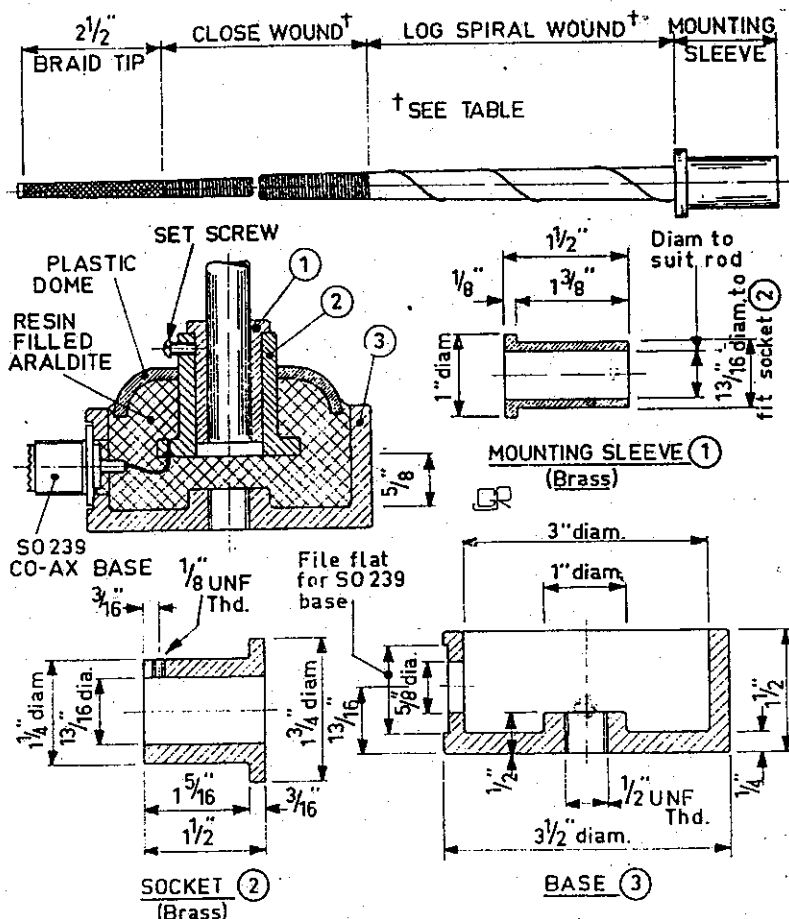
Scrape a small spot on the wire, attach a one-turn link with clips at each end to the bare copper and an adjacent earth, set an accurate monitor to the desired frequency and check the resonance with a G.D.O. Turns may be added or removed readily, providing that care is exercised in baring the copper.

Dip the whip to the monitor in a place free from frequency pulling effects, such as resonant overhead antennas, guy or fencing wires, poles or overhead shielding, feeders, etc. Should multiple dips be in evidence, the winding is much too long and a considerable number of feet can be removed.

Be very wary about

Freq. MHz.	Wire Mils.	Radius Mils.		Winding Inches		Turns		Wire Ft. Ins.		Wire Av. T.P.I.	$\frac{3}{4}\lambda$ Ft.
		Base	Top	C.W.	Spac.	C.W.	Spac.	C.W.	Spac.		
3.6	22.6	380	130	53	9	2332	4	175	11	44	205
3.6	28.5	560	175	48	14 1/2	1728	4	193	17	36	205
7.07	27.5	380	145	38 1/2	24 1/4	1386	11	104	28 1/2	36	104
14.2	27.5	366	180	24 1/2	31 1/2	882	9	41	35	36	52
21.3	27.5	380	145	13 3/8	49	477	10	24	51	36	35
28.4	27.5	380	140	9 1/2	55	346	11	16	57	36	26
52.6	27.5	183	95	3 1/2	35	117	16	3	37 1/2	36	14

Table 1.



WOLLONGONG ALUMINIUM CENTRE

Available Ex Stock a Range of
ALUMINIUM:-

- * Rectangular Hollows.
- * Round Hollows.
- * Square Hollows.
- * Flat Bars.
- * Channels.

* Cutting Service Available *

All at COMPETITIVE WHOLESALE
PRICES. Suitable for building
your own antennas.

Situated At :-
79 Gipps St; WOLLONGONG
Located close to railway
crossing.
Phone: 299382 or 285932.

S.W.R. as this antenna, complete with its image, is equivalent to three collinear half waves in phase centre fed and each half wave has its own S.W.R., therefore you have three standing waves and two of them have an effect shortening while the centre one is fed, so stick absolute resonance and be wary about pruning the braid top.

Due to length of winding and the collinear effect, there is a gain factor over a wound quarter-wavelength. Test have shown several "S" points between the 1/2 and 3/2 wavelength whips checked over two to ten thousand mile ranges.

Serious reading of A.R.R.L. Antenna Handbook chapter two is recommended as it will open the way to an understanding of image as well as physical antennas, there harmonic operation, lobe angle, feed impedance, etc.

Having resonated the whip, possibly had a look at the S.W.R., cut the spool free and carefully solder the bared end to the sleeve; now fire it up on a distant operator and check it out. Don't get it damp because it will become nonresonant and have to be dried out.

When you have it to your satisfaction and dry, spread out the spaced winding, fix with small strips of masking tape and apply a liberal coating of Plastacoat 33. This does not effect the resonance but leaves a

pleasing affect, a real finishing touch. Don't forget to have some Plastacoat Thinners on hand as it cleans off the brush, hands and splashes; turps won't.

Taken from A.R. March 73.

JUNE MEETING.

The June meeting was attended by 34 members and guests and was a busy evening. To achieve the formation of the Incorporated club it was necessary for the members present to vote on a motion to wind up the I.A.R.S. and reform the I.A.R.S. inc as of 30-6-1987.

President Keith VK2OB called on members to consider standing for committee positions or nominate someone interested in offering their expertise.

Most of the existing committee have other activities or travel plans which limit their time available and some new blood is always welcome. Keith also asked for a volunteer to act as Radio Officer for the North Wollongong Surf Club to do periodic checks on the condition of the Clubs handhelds.

Dave VK2VAV offered to perform this function

A letter received from W.I.A. requested a poll of members present for Club recommendations on changes to Novice and Limited Call privileges: The options were yes no or abstain for the following changes.

	for	against
No change	- 0 -	- 24 -
Part 2M	- 11 -	- 8 -
All 2M	- 10 -	- 11 -
Part 6M	- 17 -	- 0 -
All 6M	- 14 -	- 0 -
Part 70cm	- 17 -	- 0 -
All 70cm	- 14 -	- 0 -
Common band for all lic.		

	for	against
UHF CB as common band.	- 27 -	- 0 -
Some HF calls	- 0 -	- 27 -
Retain JA 2m on reciprocal licence	- 17 -	- 5 -
VHF UHF Except 2 metres for Novices:	- 17 -	- 7 -
	- 6 -	- 16 -

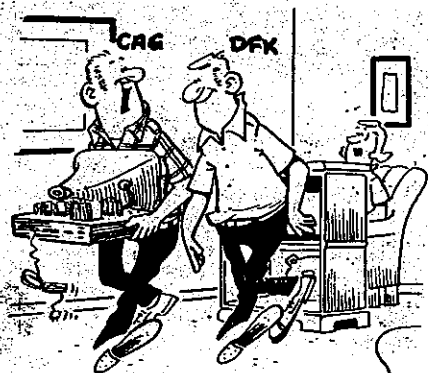
Discussions took place on pager QRM which has now been cleared on 146.850 and largely on 147.275. The advent of more pager and link systems in the area now means the Club will have to have close liaison with DOC.

The committee was invited to appoint a liaison person to handle Club business with DOC.

Dave VK2VAV/YKQ then reported a bank balance of \$1082, that 138 propagators were being printed and that F.R.L.-2. had raised \$592.

Tom Brown VK2JTB then gave an interesting talk on welding as related to tower construction stressing the need for good solid welds and the application of galvanising or cold galv after welding, also many pointers on welding precautions.

Some discussion took place on advice for VK2FEJ a white stick operator and Tony Mowbray VK2ENX has offered to get in touch with Jeff Stratton VK2FEJ and see what the situation is, and what help the Club can offer.



"Converting Your Set Into An Oscilloscope Is Easy!"

WHICHEVER WAY YOU LOOK AT IT
YOU CANT GO PAST

MARINA GARAGE

FOR SERVICE CALL IN AND SEE
PETER CHIECO

For Your :-

- * Electronic tune up
- * Wheel balancing
- * Front end alignment
- * Brakes
- * And also Rego Checks.

146 PRINCES HIGHWAY, CORRIMAL

PHONE : 84 5650

THE BLACK CAT



Robert was washed out, it had been a hard day, working at the studio, but for all that he was looking forward to his long weekend that he was starting tomorrow.

After he had eaten he went to his garage and started preparing his car for the trip upto Port Macquarie. By the time he had finished checking the engine out and installing his new 2 metre rig it was getting late so he didn't get round to washing the car and windows.

Robert arose early next morning and after a shower and breakfast hit the road. By lunch time he was well past Sydney on the freeway. His new 2 metre rig had already given him six contacts and everything was going smoothly.

Because he had made good time, and being a nice sunny day, Robert decided to get off the freeway and take the back road round Lake Macquarie.

He had just passed a road sign indicating a small town was coming up a head, and was negotiating a bend in the road when the sun hit his windscreen and for a few seconds he was driving blind.

Cursing for failing to find time to clean his windscreen before he had left home, he touched the brake to slow him down until he could see properly again.

At that instant he saw the black cat crossing the road in front of him, and realised he had no chance of stopping in time. Even as he was braking he felt a bump and went back to see how bad the cat was. The cat was dead, so Robert grabbed it by the tail and threw it on the grassy bank by the roadside.

Robert continued his journey and within a few minutes entered the small town and decided to stop there and clean up and have lunch and a drink.

As he entered the old pub a feeling of fear swept over him which was quickly dispelled by the friendly greeting from the publican. He ordered his drink and went off to the toilet to wash his hands that had been tainted by the dead cat. Robert had been drinking and talking to the publican and half dozen locals that was in the bar for about 15 minutes.



They were enjoying each others company until Robert happened to mention about killing the black cat on the edge of town.

Suddenly the atmosphere changed, the locals all walked away and the publican told Robert he didn't want him in the pub and to drink up and go.

Robert couldn't understand what was wrong, but thought it was time to get going anyway, so drank up and went.

On arriving at his car he found it covered with cats and when he tried to shoo them away one of them a big black cat jumped on him and started to rip into his skin with his razor sharp claws.

Managing to pull the big cat off him, and realising they were all getting ready to attack him, Robert made a dive back for the pub door and the safety of the bar with the cats in pursuit.

Robert was in a mess, with blood gushing out from all over his back, legs and arms. The big black cat who had attacked him had done his job well.

He appealed for help from the locals in the bar but they ignored him. Suddenly there was the sound of breaking glass, the big black cat had hurtled itself through the bar door window, landing on Roberts chest and dug its claws deep into his



flesh. He tried to free himself from the penetrating claws of the cat, as he screamed out in pain.

The cat changed his position and lunged and slashed his claws into Roberts throat causing him to scream out once again. In sheer desperation, Robert grabbed the cat by the tail and pulling it off his throat threw it into the fireplace where the fire soon engulfed it in flames.

Robert by now was covered in blood from head to toe and was pleading for help from the locals, but they just turned their backs on him.

Robert slowly made his way to the door of the bar and looking out into the car park saw that there wasn't a cat in sight. If it wasn't for his blood covered body he would have thought this had all been a dream. Taking the opportunity he dashed to his car and climbed in.

Making sure the windows were closed, he tried his 2 metre rig to see if he could summons help from the amateur fraternity, but the radio was dead and the antenna was smashed.

He put the car in gear and drove out of the car park thinking to himself that the quicker he got away from this place the better.

His car was found later on the edge of town rammed into a tree. When police arrived on



the scene all they could find in the car was the body of a burned cat but no driver.

Roberts ripped and mutilated body was found the following day, laying beside the body of a dead black cat on a grass bank by the roadside. Local people swear that the dead cat appeared to be smiling.

VK2PZY (DAVE)

To the I.A.R.S. Members

I thought it was about time that I wrote to you and gave you an update on Amateur Radio in Papua New Guinea, particularly when I have been reading about the lack of input from the Members. The problem is not confined to your region though, our Editor of Garamut is also perpetually on the scrounge for bits and pieces for our magazine.

I must admit that you seem to be much more successful than us in this area.

The Amateur population here is steadily declining due primarily to the smaller number of expatriates in the country - it is very difficult to get Papua New Guinean Nationals interested in the hobby (due both to the cost and also being one of minority group, and also because of the extraordinary social pressures that most educated Papua New Guineans have on their available time).

COAST-WIDE COMMUNICATIONS

LOT.B. LAWRENCE -
HARGRAVE, DRV. THIRROUL

WE STOCK: CB RADIOS
CB AERIALS - COAX CABLE
MARINE RADIOS
TV - AERIALS, ETC ETC.
SALES AND SERVICE

OPPOSITE THE
SHELL - GARAGE
PHONE : 67 2134.

VK2KWN WAYNE NEWPORT

Despite that, there are just a handful of Nationals who are licensed, but they tend to be fairly inactive. In some respects it is surprising since they are quite articulate as a listen on any of the network frequencies linking commercial stations demonstrates. I think that the large preponderance of whites already on the air is the major detrimental factor.

So far as numbers go the P.N.G.A.R.S. has about 55 paid members out of a total licenced amateur population of 142: of the 55 only about 10 or 12 significantly contribute to the Society.

For its size the Society has managed to do quite a few significant things so far as amateur radio is concerned: it operates at present three two metre repeaters - one on 147.000 in Port Moresby (P29RPM), one on the top of the Owen Stanley ranges at 13,100 feet above sea level at Mt Albert Edward (P29RAE) one between Arawa and Panguna on Bougainville Island (P29RBI) and shortly the central highlands repeater (P29RCH).

All except Mt Albert Edward can be attended without too much difficulty, hostile locals excepted although to date servicing has not been necessary very often.

The Mt Albert Edward station, as required by the licencing authorities has remote tone encoded shut down, re-start, battery monitoring, high / low power switching and a few

NEWTEK-

ELECTRONICS

WE STOCK:

ALARMS - ANTENNAS
BOOKS - BOXES
COMPONENTS-COMPUTERS
HARDWARE - KITS - TOOLS
WIRE AND A LARGE RANGE
OF SEMICONDUCTORS FOR
THE PROFESSIONAL AND
HOBBYIST : 116 CORRIMAL
STREET. WOLLONGONG.
(JUST FROM HARP-HOTEL)
PHONE : 27 1620.

other "goodies" to save possible troubles if something unexpected does go wrong. Locally the Society has now put to air a 70 cm repeater, P29RHB on the unusual (for Australia anyway)

frequency pair of 438.800 out / 433.800 in

The Society also operates two beacons, one 52.013 mhz and the other on 144.015 mhz (the latter is currently being moved to its final side).

The respective call signs are P29BPL and P29BTO.

In the past couple of years or so we have had members active on satellites and AMTOR, but to date no EME or Packet activity. There is no RTTY currently on air either.

Now for few general comments: firstly the Society here works very closely with the Post & Telecommunications Corporation, Radio Frequency management branch: it is a harmonious relationship with benefits both ways.

We have, for example, C.W. privileges for Z calls without prior testing - this is designed to encourage Limited Licencees to upgrade by making it "easy" for them to practice the code.

Although the Novice Licence specifies 10 watts D.C. or 30 watts P.E.P. as the power limits, the Corporation certainly turn a very blind eye to Novices using the normal 100 watt rigs in an unmodified state: it would seem from on air monitoring that most Novices use the rigs "as is". Again there is no

significant larraking element here - malicious repeater jammers, wombats, etc. etc are an unknown quantity.

Most activity from the country is on the 7, 14 and 21 mhz bands with a couple of 3.5 mhz and 1.8 mhz die-hard C.W. buffs and the occasional 28 mhz venturer.

The V.H.F. / U.H.F. / S.H.F. activity is certainly centered here in Port Moresby, but is confined to just a few operators. For my own part I now operate on 50 - 54, 144 - 148 (both all mode) and on 430 - 440 all mode as well.

We read with great interest your R.I.'s comments on TVI - our situation is much clearer. The allocations for T.V. are from approximately Australian Ch 6 to Ch 11 and U.H.F. band TV only. Nowhere near any amateur band.

Although the transmitters are low powered 100 to 200 watts there have been no problems with the broadcast signals. Cable T.V. from dishes with converters and miles of suspect above ground distribution cable are another matter. The official attitude is, since cable distribution over the property boundary is illegal, but exists on a de facto basis, that any interference is entirely the worry of the cable company / customer and provided the amateur is operating legally (i.e. spurious etc are within the defined limits), no action other than advising the complainant that it is his problem.

All the best of 73's to the members of the I.A.R.S. inc. - do hope the list of sick gets shorter and shorter and that you have a good year Club wise, a big hello to those active on 50 - 54 mhz, keep a look out for me either on 52.050 or 52.065,

from Eric Fien P29ZEF.

—FOR—
COURTESY TO
AMATEURS AND
VALUE
IN
OUR AREA
NOT USUALLY
SEEN ELSEWHERE

WE RECOMMEND!!!!

CAUTIONS

11. MOLLOY STREET. BULLI.
PHONE: 042-84-6838

TO ALL OUR CLUB
MEMBERS.

WANTED

A ARTICLE FROM E.T.I.
OR E.A. MAGAZINE THAT
HAD A KIT DESCRIBED
FOR A MODEL TRAIN
CONTROLLER.

Controller is a pulse
with modulation type.
A borrow would be all
that is required.

Call TONY UK2ENX ON AIR
or Phone 23-5296.

THE STORY OF AUSSAT

AUSSAT - The Australian Satellite System

(Part: 2)

Last month we looked at the AUSSAT Satellites themselves & their orbital positions. We now take a look at the B-MAC Transmission Standard as used by AUSSAT.

The B-MAC transmission system is a completely new signal format for disseminating colour TV plus radio signals, which offers important advantages over the normal Australian terrestrial TV system -(PAL D), especially when broadcasting via satellites. In the original planning of the AUSSAT system, it was assumed that the TV signals used would be the same as our everyday VHF/UHF system, except of course the signals would be imposed on carrier frequencies, appropriate to satellite working but would be capable of direct down-conversion for reception on standard TV receivers.

However, it didn't work out that way. Like the TV systems used elsewhere in the world - (SECAM & NTSC), PAL is very much a compromise system, originally devised to achieve mutual compatibility between colour & monochrome transmission & receivers. All three systems retain the basic luminance signal to suit monochrome receivers but the chrominance (colour) information is superimposed on it, by means of a colour sub-carrier, to be decoded & used by colour receivers. The accompanying sound is frequency modulated (FM) on to a separate sub-carrier, set (in Australia) at 5.5 MHz above the picture carrier, with a still further sub-carrier, nowadays, for stereo sound.

Because all this information is transmitted (& received) simultaneously, sundry precautions have to be taken to minimise the risk of interaction between the individual signals. Even so, let someone appear on the set with a jacket having narrow vertical stripes, & whole areas of the jacket may shimmer with random patches of colour. This happens because a repetitive variation in luminance signal, caused by the stripes, is misinterpreted by the receiver as colour information. Other possible problems include colour fringeing, patterning or video "noise" in large areas of saturated colour & interaction between picture signals & a heavily modulated sound carrier. For an example of this, sometimes the bright yellow price supers in the "gift shop" on Sale of the Century have a "bleeding" effect around the edges of the numbers.

Such problems, barely manageable now, loom much larger when looking to future television needs, which could readily involve a demand for higher effective definition & a lower "noise" content, as for larger screen viewing; this in the context of DBS (Direct Broadcasting from Satellites) using by present necessity, low powered (eg: 30 W & 12 W) frequency modulated transmitters, with attendant noise problems. Considerations like these caused DOC engineers to take a much harder look at the routine PAL option & finally to favour a more "rugged" signal format for the AUSSAT service. Going for them was the fact that they were planning an essentially new service for which most directly involved viewers would be buying new equipment, covering both radio & TV reception. If Australia was to make a forward move in terms of transmission standards, this was the time to do it.

Of the many options open to DOC engineers, the most favoured format was referred to as "MAC", short for "Multiplexed Analog Components". MAC maintains the video information in analog form but multiplexes it - transmitting luminance & chrominance information in sequence rather than simultaneously. By this multiplexing the potentially troublesome colour sub-carrier is eliminated. But the MAC system doesn't stop there. There are a few more advantageous benefits from this system, but which there is not enough space in this article to go in to. Overall, a MAC signal is very "rugged" but also very "tidy", with luminance, chrominance & multi-channel hifi sound all on one modulated carrier. That's the basic concept but, along the way, "MAC" has also picked up an array of prefixes from A to E.

THE STORY OF AUSSAT CONTINUED

The most advanced of the MAC variants, B-MAC provides video multiplexing, as described, plus provision for six high quality (17 kHz) audio channels, a data channel (9,600 bits/s), optional scrambling (eg: Sky Channel & Club Superstation), on-screen text of various kinds, & system test signals. It's use in this country is a world first, with the prospect that the Australian initiative will confirm it as the world standard for the MAC format.

Next month we will take a look at the Controlling Earth Stations, the HACBSS service & the other assorted uses for AUSSAT.

Till then, 73's de VK2MT

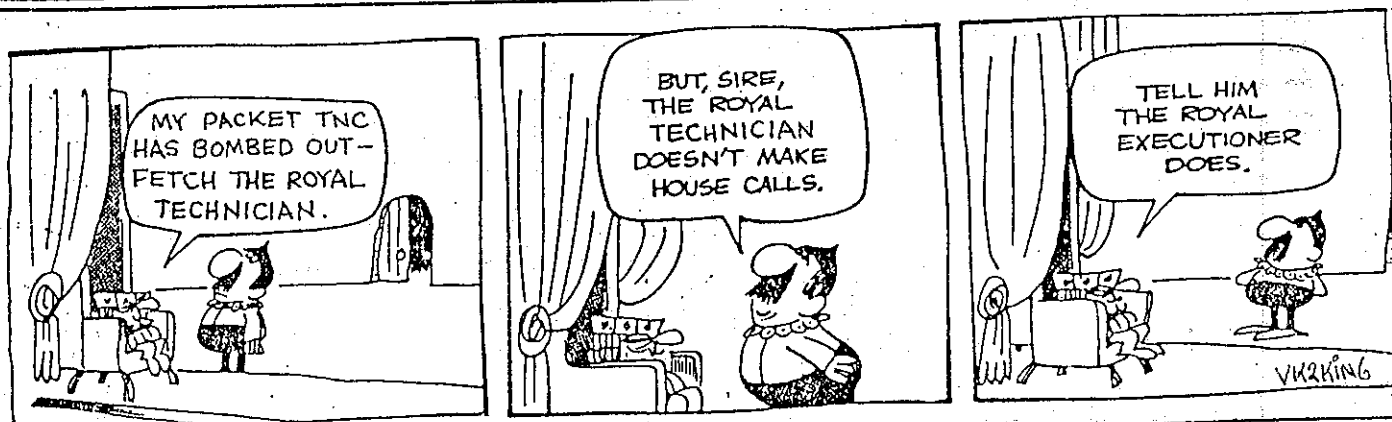
REPEATER REPORT CONTINUED VK2CAG

This concludes my last repeater report. Regretfully, I will not be writing any more of these reports in future. I have enjoyed writing them, and it has been good typing practice for me for RTTY and packet. The controversial response to my last report has taught me a valuable lesson, and that is that when you put down your thoughts in writing, you can never tell how they will be interpreted by other readers. It was never my intention to upset anyone, just to convey to readers what many repeater users have conveyed to me... whether they are upset about some form of annoying interference or if they are praising the efforts of a particular person or group, it all goes down in the reports. I have reported the facts as they have been told to me, complete with with errors and omissions at times. But this is our hobby and is supposed to be fun. When it stops being fun its time to quit. My last report generated response which caused me considerable distress, so from now on I am leaving the report writing to someone with better journalistic skills than I have, someone who can write reports which are less open to misinterpretation. I will make available repeater related information to the editor when requested for future issues of the Propagator.

Thank you all for your interest and support.

<< Graeme >> VK2CAG.

A SPECIAL thanks to Bill Knobel VK2XYZ who has donated \$50 to the Club. To be spent on Packet Radio. Bill also has donated another VHS video tape to be used for the Club activities, etc.





THE ILLAWARRA AMATEUR RADIO SOCIETY

P.O.BOX 1838. WOLLONGONG.2500. N.S.W.



MEETINGS: Are held every 2nd Tuesday of the Month except January, at 7.30.p.m. in the S.E.S. Headquarters, Montague street, North Wollongong.

REPEATERS: VK2RAW - 146.850. - (VOICE) VHF Mt Murry.
VK2RIL - 147.275. - (VOICE & R.T.T.Y) VHF Sublime Point.
VK2RUW - 438.225. - (VOICE) UHF Hill 60 Port Kembla.
VK2RIL - 438.725. - (VOICE & R.T.T.Y) UHF Sublime Point.

BROADCAST: On Sunday evening prior to the club meeting, at 7.00.p.m. R.T.T.Y. Mode, and at 7.15.p.m. on voice. Transmitted on 147.275.VHF, and relay on 3.562.Mhz. Callbacks will be taken after the voice broadcast.

W.I.A. RELAY: On 146.850. at 11.00.am. and at 7.30.p.m. each Sunday.
CLUB - NETS: On 3.562.Mhz. SSB on Sunday at 8.00.p.m. and a slow morse net on 28.440.Mhz. on Thursday evenings at 8.00.p.m.

NEWSLETTER: "THE PROPAGATOR", published monthly to reach FINANCIAL-MEMBERS in the week preceeding the club meeting. All articles, adds etc, to the editor must be in, or try, by the 3rd Tuesday each month.

MEMBERSHIP: The Secretary, I.A.R.S., P.O.Box.1838. Wollongong. 2500. Full membership is \$10 per annum; students & pensioners concessional members \$5 per annum.

AWARDS: The award of the Illawarra Amateur Radio Society is the LAWRENCE-HARGRAVE-AWARD. VK stations require 10 contacts with I.A.R.S. members. Overseas stations require 5 contacts with I.A.R.S. members. A contact with VK2AMW is sufficient for the award. Band-details, date, frequency, station worked and \$2 or 4 I.R.C.'s. to THE AWARD-MANAGER, I.A.R.S., P.O.Box. 1838. WOLLONGONG.2500. No QSL-CARD is required.

STORE: The club store operates at each club meeting. by COMMITTEE-MEMBERS.

COMMITTEE:

PRESIDENT	VK2OB - KEITH CURLE. 24. Beach Drv, Woonona.
VICE-PRESIDENT	VK2DYU- BILL CHADBURN. 45. Beltana Ave, Dapto.
SECRETARY	VK2EJH- JIM HAYES. 1 Kathleen Cres, Woonona.
TREASURER	VK2VAV-YKQ-DAVE HENDERSON.8.Gladstone st.Bellambi.
AUDITOR	VK2ZHU- GEOFF CUTHBERT. 1 Nioka Ave, Kieraville.

GENERAL-COMMITTEE: VK2EXN- IAN CALLCOTT. VK2ENX- TONY MOWBRAY. VK2MT- ROB McKNIGHT.
VK2ALK-LES KIRCHMAJER. VK2DWR-DAVE ROUTLEDGE. VK2BAC-PETER WOODS.
VK2OE-WOJCIECH TOMCZYK.

REPEATER - CHAIRMAN: VK2CAG - GRAEME DOWSE.

REPEATER - COMMITTEE: VK2EXN - IAN CALLCOTT. VK2EMV - MORRY.v.d.VORSTENBOSCH.
VK2DFK-MIKE KEECH. VK2MT-ROB McKNIGHT. VK2BAC-PETER WOODS.

QSL-CARD'S OUT : VK2EXN - IAN CALLCOTT.

QSL-CARD'S IN : VK2DWR - DAVE ROUTLEDGE.

E.M.E. CO-ORDINATOR: VK2ALU - LYLE PATISON.

PUBLICITY - OFFICER: VK2VAV/YKQ - DAVE HENDERSON

BROADCAST - OFFICER: VK2ENX - TONY MOWBRAY.

CARTOONIST : VK2AXI - BRIAN WADE.

PROPAGATOR-EDITORS : VK2PZY - DAVE CAPON. VK2EMV-MORRY.v.d.VORSTENBOSCH.

PRINTERS : VK2DFK - MIKE KEECH. AND POSTED BY VK2EJH-JIM HAYES.

LIFE - MEMBERS : VK2CAG-GRAEME DOWSE. VK2OB-KEITH CURLE.VK2ALU-LYLE PATISON

SUNDAY - EVENING - CLUB-NET - ROSTER:

FIRST SUNDAY OF THE MONTH :	VK2MT - ROB McKNIGHT.
2 nd SUNDAY OF THE MONTH :	VK2ENX- TONY MOWBRAY.
3 rd SUNDAY OF THE MONTH :	VK2PZY- DAVE CAPON.
4 th SUNDAY OF THE MONTH :	VK2DWR- DAVE ROUTLEDGE.
5 th SUNDAY OF THE MONTH :	VK2EBI- KEVIN MURPHY.