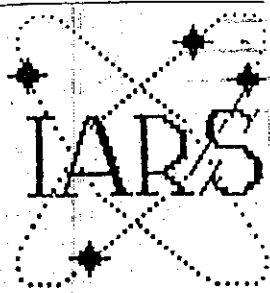


THE PROPAGATOR



ILLAWARRA AMATEUR RADIO SOCIETY

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY.
VOLUME - 87, NUMBER : 5 JUNE 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 MEETINGS.

PAGER QRM RAMPANT

SEE PAGE 3

May Committee Meeting

Reports were received from Treasurer Dave VK2VAV who reported a healthy financial state and from Mike VK2DFK on printing supplies.

Graeme VK2CAG had a pile of repeater business which is detailed in the repeater report.

Discussion took place on the moving of the Digipeater from High Range to Mt Murray.

Also on the LOTTO FUND RAISING SYSTEM which is now due to start the third series.

PAGER INTERFERENCE was also discussed and DOC is now taking action on this matter.

Jim VK2EJH reported that C.A.C. is progressing with the Incorporation.

May Monthly Meeting

Forty members and guests attended the May monthly meeting. Dave VK2VAV/YKQ reported that the C.A.C. had returned our articles of incorporation for minor alterations and they have been resubmitted.

Lyle VK2ALU reported that Oscar 10 will be available with some restrictions on useage. One member who travels a long distance to attend the occasional meeting is VK2QU Jim Bainbridge who has moved to the Wodonga area. Jim was staying at Engadine so managed to attend the May meeting and enjoy a ragchew with old friends.

Some discussion took place about pager noise on VHF highlighting the need for members to submit LOG extracts to Graeme or a Committee member if action is needed.

There being no speaker arranged for the meeting, a ragchew session then ensued with lots of information flying about and a pleasant evening concluded with the usual cuppa and biscuits.

-----****-----

JUNE MEETING

The speaker at the June meeting will be VK2JTB Tom Brown who will speak on tower design, construction and welding.

-----****-----

PAGER INTERFERENCE.

Members wanting club action on pager interference should submit copies of log extracts to Graeme VK2CAG or a Committee Member. Both 146.850 and 147.275. have recently been affected by pager operations.

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 June 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..)

COAST-WIDE COMMUNICATIONS

LOT.B. LAWRENCE -
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CB ABRIALS - COAX CABLE
MARINE RADIOS
TV - ABRIALS, ETC ETC.
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SHELL - GARAGE
PHONE : 67 2134.

VK2KWN WAYNE NEWPORT

Dont make expensive mistakes by buying blind
What should you expect as a minimum when
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- * 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.

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REPEATER REPORT - GRAEME VK2CAG

PAGER INTERFERENCE.

Both of our 2 metre repeaters have been suffering from interference by high power paging transmitters for some time now. It started on 7275 on 24/7/86 and has continued to date. It is not destructive interference, in that it is not strong enough to interfere while the repeater is in use, but it causes the repeater to trigger dozens of times a day and give out bleeps and blurts which is very annoying to anyone who is monitoring the channel.

6850 has been affected since 3/3/87 by pager interference of a different kind. This is destructive interference, as it obliterates signals from legitimate users of the repeater as well as putting out clearly audible messages. The particular transmitter responsible has been heard by a number of amateurs on other repeaters and on simplex channels on 2 metres.

Now we have all heard a lot about pager interference to 2 metre repeaters in general, and almost all of the other clubs experiencing trouble have their repeater co-sited with the offending pager. In these cases, even if both the amateur repeater and the paging transmitter are well within specifications, trouble is to be expected because of the close proximity both distance and frequency wise of the two units. However, our situation is different. Neither of our repeaters is within kilometres of the offending pager transmitters. It is obvious then that the pagers have problems.

At the last committee meeting the problem was discussed at length, and as a result a letter has been written to the DOC containing logs and description of the interference. This appears to be all we can do officially about it.

Up to the date of writing, the interference has persisted on both repeaters and its starting to make people ANGRY! The source of interference is known, as I have done my own investigations. In the case of 7275, the culprit is located at Brokers Nose above Corrimal. Its carrier is 148.4125 MHz and has a low but constant level spurious output on 147.875 which is our repeater's input freq. It is run by Telecom, and DOC has informed me that Telecom will be notified of the problem and requested to fix it. This happened a couple of weeks ago, and given that the problem has been there for 10 months now, another wait while Telecom gets onto the job won't make much difference. Anyone in our club who WORKS at Telecom who can pull a bit harder on those strings of red-tape would be doing the rest of us a service.

The culprit upsetting 6850 is on 148.815 MHz and is located at Knight's Hill and is run by Illawarra Paging. (I didn't have to be Sherlock Holmes to deduce that... they identify regularly through our repeater!). Now the firm who is responsible for it, the technician who installed it, the local office of the DOC all know about the problem. It seems that everyone knows but nobody is doing anything about it. Consider what would happen if our repeater was causing the same problem to a licenced commercial user of a VHF channel (or lots of channels, as in this case!). I wonder how long our repeater would be allowed to run rampant with spurious signals before some sort of action was taken? I hereby make a similar appeal to anyone in our club who has dealings with Illawarra Paging to have something done 'through the back door'. Otherwise I feel that it is our duty to ring them up every time their messages are heard through our repeater and let them know that their messages are being heard by dozens of people other than the intended recipient. I don't think their customers would be too happy about the situation if they knew. Another thing, surely it must be a breach of regulations to continue operating a defective transmitter in a manner that causes destructive interference to another licenced service. Incidentally, the problem is plainly visible on a spectrum analyzer located some two kilometres from the transmitter. The spurs vary in frequency as the transmitter warms up, and there are several of them.

CONTINUED PAGE 5

TINK ABT IT

FOREMAN MATERIAL ?????

Can you see yourself as foreman material ? Well perhaps not but you could function in a position on the Club's Committee. Election time is just around the corner so give it some thought as to how you can contribute to the running

of your Club for the next 12 Months. It is not hard and usually only takes two tuesday nights a Month with the General meeting on the second tuesday of the Month and a Committee meeting the next week. Fresh faces are always appreciated (along with a few not so fresh) in the lineup.

If you think you are unsuitable, surely you could nominate someone else in the Club.

THINK ABOUT IT.

-----*****-----

A PLEA.

If any person is interested in being a Co-ordinator for the Sunday evening nets on 80 metres, we would be glad to hear from you. Not much is involved. All you need is a rig on 80 metre capable of SSB and an antenna (preferably one that works). The person involved would, hopefully, only have to run the net once a Month or even less if enough people can be coerced. A roster will have to be drawn up for the next 12 Months, so now is a good time to think about it. See Tony VK2ENX, at the meeting, or on air Sunday evenings if you are interested.

-----*****-----

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- * Front end alignment * Brakes
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PHONE: 84 5650

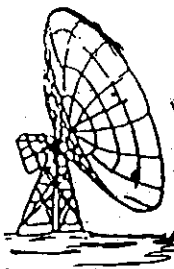
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AMATEURS AND
VALUE
IN
OUR AREA
NOT USUALLY
SEEN ELSEWHERE
WE RECOMMEND!!!!**

CAVIONS

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TO ALL OUR CLUB
MEMBERS.



SATELLITE NOTES BY LYLE VK2ALU

Satellite Notes - June 1987 (prepared 21/5/87)

Permission was given early this month for the use of the Oscar10 transponder for general communications as from the 15th May, by which time it would have recovered to a large extent from the long eclipse period earlier in the year. However, as the on-board computer is unservicable, due to damage from ionised particles, there appears to be no easy way to determine the attitude of the satellite and thus to know when to expect best operating conditions.

When I have made checks, in the MA30 to 80 part of the orbit, I have found its beacon signal strength to be down to 2 to 3 "S" points above noise. VE7BBG has told me that he has found it to be better around MA 180 to MA 220 and has made several contacts, using his 20 foot dia. dish. This has provided S7 to S8 signal reports! I have heard a few stations on, prior to apogee, but they were not of any great signal strength. I plan to make checks this weekend at around MA200 to compare conditions then.

Stations using Oscar10 have been requested to keep their power level down until the battery voltage is fully recovered (and remember normal power level to use is that which will provide "echos" at about the same signal strength as that of the beacon) Also, as the transponder is now permanently switched on, only use it between MA 030 and MA220 as the satellite is in the shadow of the Earth for a time each orbit, near perigee.

The launch of the Phase 3C satellite has suffered further delay because of the continuing series of problems being experienced by the Ariane rocket program.

The FO12 satellite Packet Mailbox operation is expected to be available for use soon.

Lyle VK2ALU.



REPEATER REPORT CONTINUED

Now for something more interesting.

The UHF 8725 repeater at Sublime Point has been fixed and was put back into service on Sunday 24/5/87. The fault was caused by moisture condensation on the transmitter control logic board. A small spot of corrosion between two tracks of the board stopped the PTT voltage from going high enough to fully turn the transmitter on. This repeater has never been touched since it was installed in June 1983. Not a bad record for reliability! Its output and sensitivity had degraded, but came up to normal after re-alignment.

The packet digipeater VK2BFI-1 failed about the second week in May. I went up to High Range on 16/5/87 to check it out. Water had entered the shack and a small amount had entered the TNC box causing the TX timer to fail, preventing the transmitter from keying. As soon as it was dried out it worked normally. However, it had been at High Range on test to determine whether it would serve the Illawarra district from that location, since there was power on site, and other considerations making it an attractive proposition.. But with a number of new packet stations in this area recently started up not having a good path to High Range, we decided to re-locate the digi to Mt. Murray, where it was originally proposed to go.

During the last week the digi at Mt. Murray has proved to be a real winner for packet operators on the coast. It seems that every packet station in this area can access it, and it has a good path to the Sydney packet repeater VK2RPA and stations in Sydney's West and the Blue Mountains. This is the link we have been needing to get our packet signals reliably into Sydney and the wild blue yonder! Two problems were expected with the co-siting of the two repeaters. First, the interference between them, being separated by only one megahertz, and second, the energy situation, both repeaters being run from the same solar supply. As it happens, in one weeks operation the battery voltage has reached maximum during the days and has been well above the minimum in the early morning. So far its looking good, and it is being monitored closely. On the interference side, the problem was not as bad as expected. There is a small amount of de-sensing between each repeater, but not noticeable unless input signals are weak. Filters are being constructed to overcome this. (We are re-cycling the old cavities ex-Sublime Point from pre-duplexer days)

So the future for Mt. Murray digipeater (callsign VK2RAW) looks promising. The battery capacity has been increased to 150AH. A change of aerial from dipole to Ringo, fitting of cavity filters, and close monitoring of the energy situation will keep us out of the pub for the next month. If any problem does arise with energy or unforeseen happenings, then 6850 will be given priority and the digipeater will be switched off.

At present the digipeater runs half the power, has half the aerial height and much less aerial gain compared with 6850, so a fair difference in signal strength can be expected between the two repeaters.

The Southern Highlands Club deserve our thanks for being host to the digipeater and for giving our repeater committee access to their site during the test period. Another digipeater is destined for High Range in the near future to be sponsored by a Sydney packet group, so the link which our digi established between Sydney and Canberra will not be missed for long.

On the 6850 re-build project, we have purchased a surplus 25 watt VHF high band transceiver which was used in duplex configuration in commercial service. It is solid state, has separate TX and RX boards, capable of being re-housed in suitable RF proof boxes. The TX/RX separation was originally 5 MHz, so there is quite a good deal of work to be done before it will work as a 2 metre repeater. However, the gear is old (its an AWA repeater version of the model 25M), and if anyone has a more modern unit to dispose of, please don't wait too long to tell us because work should start on this unit in a couple of months.

<<Graeme>> VK2CAG.

WOMBAT BITES THE DUST ???

SYDNEY AMATEUR'S LICENCE CANCELLATION

Taken from W.A.R.C.

The following release is for the Wireless Institute Broadcast:

David Wardlaw, President of the Wireless Institute of Australia, today congratulated the Department of Communications on its successful action to help clean up the Sydney voice repeaters.

"It was unfortunate" said David "that a very small minority persisted in using foul and abusive language on air. Apart from being an offence under the Radio Communications Act, it was a real abuse of the privileges of the Amateur Service."

David Wardlaw went on to say that many amateur operators were refraining from using the repeaters rather than suffer the offensive behaviour.

The Wireless Institute's 51st Annual Convention has spent some time discussing this decline in behaviour on the Amateur Bands.

Advice was received that Mr Robert Lear, VK2ASZ, was issued with a notice of cancellation of his licence on Thursday 30th April 1987

The Department of Communications have also expressed their concern

about the level of anti-social behaviour by some amateur operators in Sydney.

"The Department of Communications has acted on our complaints" David said. "This is the first licence cancelled under the new Radio Communications Act and on behalf of the Institute I would like to extend our appreciation for the work of the Radio Inspectors involved and we hope that this action will act as a deterrent to all those amateurs who wilfully disrupt repeater operations".

David Wardlaw said that the investigation had been conducted extremely quietly. "Today's announcement of the action taken is a real relief to those who were so upset and angry at the constant disruption to our hobby."

At the conclusion of the Convention discussions on this topic, the following resolution was carried unanimously:

"That this convention recommends:

(A) The Institute supports education in appropriate operating techniques and its conduct within training courses,

(B) The Institute publishes and

distributes information statements on operating techniques and conduct.

This information should, wherever practical, be incorporated within a widely available "Getting on the Air" information package.

(C) This institute strongly recommends to its members to support the DOC in whatever manner in its efforts to control blatant and serious offenders against long standing codes of conduct."

Dr David Wardlaw, Federal President, Wireless Institute of Australia, 2nd May 1987.

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HELP URGENTLY WANTED

ANOTHER PLEA...

Graeme VK2CAG, would like anyone who has any surplus gear who may be interested in contributing towards the upgrade of VK2RAW, to contact him as soon as possible. This repeater is a very well known one and covers a very large area. Persons have even been known to access it from Newcastle using a handheld from inside a house... Please help in this worthwhile cause (if you can of course).

CALL-BACKS ON THE I.A.R.S. CLUB BROADCAST OF THE STATION VK2AMW/P on 147.275. VHF. were:-
VK2CAG-Graeme, VK2BIT-Peter,
VK2EJH-Jim, VK2EXN-Ian, VK2IU-Ralph,
VK2MT-Rob, VK2KCV-Pat, VK2ENX-Tony, VK2KHE-Peter
VK2ALU-Lyle, VK2DF-Len, VK2EMV-Morry. and on 3.562.Mhz. VK2HQ-Frank.

ON THE NET:
Sunday 24th May:

VK2EBI-Kevin Co-ordinator
VK2MT-Rob, VK2NNJ-John,
VK2IU-Ralph, VK2FDU-Paul,
VK4???

Also a good roll up on the 10th of May but have no info ????????

I would like to thank the members who have been kind enough to supply some material for use in the PROPAGATOR.

TNX the Editor.

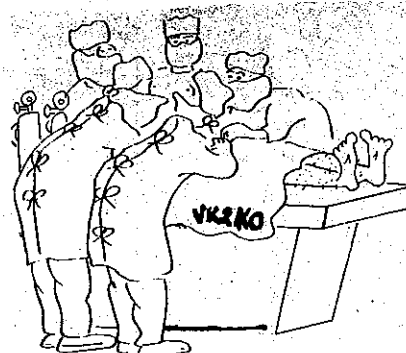


VK2FCP

"This all sounds very complicated to me!"



"Sometimes I wish you collected stamps, like other men."



"He should have known better than to tangle with a solid-state computer." ???

NEWTEK- ELECTRONICS

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Dave VK2DWR

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PHONE PATCH MOBILES FROM TELECOM.

=====

A new system of radio telephone released in February by Telecom is called a cellular phone network.

This system provides connection to the normal phone network from a vehicle or field phone terminal via a radio link.

The system operates in the 800 Mhz band and uses a series of transmit receive units which each send and receive in a radius or cell of from 2.Km to 12.Km according to population density.

Already in use overseas the cellular system has each cell linked to performance monitoring equipment and a central computer which taps into the normal telephone system. As the vehicle moves from one cell to the next the monitoring equipment switches calls to the cell with the strongest signal.

The system also provides for diverting calls back through the phonepatch computer to another number by entering codes on the mobile unit.

Available now in Sydney and Melbourne and other Capital Cities soon, for a mere \$3600 plus Telecom fees of \$600 per year plus calls the motorist can have a vehicle phone which connects to the normal phone system and provides near perfect

coverage throughout the City. by the Editor.

VK2JT.

100 YEARS SINCE

This month is the one hundredth anniversary of the first successful demonstration of transfer of energy through air by electrical waves.

Heinrich Hertz used a primitive spark transmitter to energise a resonant coil a few inches away causing a spark across a tiny spark gap on the receiving coil.

This was a first step in wireless transmission and while only a laboratory demonstration was a breakthrough in proving the theories of Maxwell that electrical waves would travel through space.

Hertz died in 1894 without wireless waves being developed for practical purposes. Guglielmo Marconi read of Hertz's experiments in his obituary and set out to develop the Hertzian waves.

Marconi then progressed from sending waves to an adjacent room to two-way communication across the English Channel in 1898 and would have to be regarded as the main developer of early practical radio.

Hertz's name was adopted internationally as a frequency unit of one cycle per second as a belated tribute to Hertz in the mid 1900's.

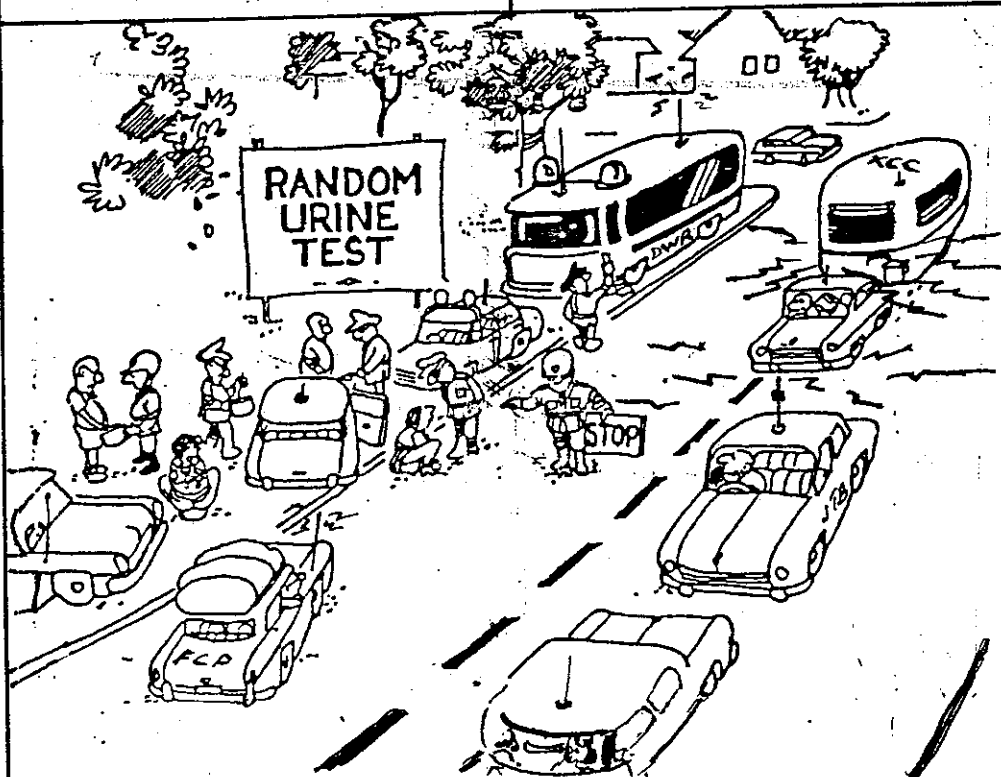
This confounded those of us who had grown up on Kay Cees and

Megs and had to switch (KAY CEES) to Hertz.

I suppose Giga - Marconis would have been worse.

The probability of as much change and development in the next 100 years is quite a thought.

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GOOOOOOR BLIMEY NOW I HAVE SEEN AT AL TOM !

THE STORY OF AUSSAT

AUSSAT -The Australian Satellite System

(Part: 1)

AUSSAT, the Australian national satellite system, will provide a wide range of services across Australia, including its offshore islands, with some potential capacity for Papua New Guinea. Domestic services include direct television & sound broadcasting distribution & relay, digital data transmission & centralised air traffic control services.

AUSSAT Pty Ltd, in May 1982, signed a contract with Hughes Communications International, a wholly owned subsidiary of Hughes Aircraft Company, to manufacture three satellites & two telemetry, tracking, command & monitoring stations. The contract also provided for launch & operational services & ground support.

Two Satellites have to now been launched. AUSSAT 1 was launched from the U.S. Space Shuttle "Discovery" on 28 August, 1985. This was followed 4 months later, on 27 November, 1985 by AUSSAT 2, which was carried aloft by Space Shuttle "Atlantis".

The original plan was for a third satellite, AUSSAT 3, to be lifted into orbit by the unmanned European "Ariane" rocket in August last year, but technical problems with the launch vehicle have now delayed this until at least halfway thru' this year.

Communication Satellites like AUSSAT are placed in geosynchronous orbits 36,000 klm above the Equator. At this height they take exactly 24 hours to complete one orbit. This means that they turn at the same speed as the Earth & appear to remain at the same point in the sky, although in practice there is some drift. For this reason, small thruster rockets are fired from time to time to keep the spacecraft on station & to maintain the correct attitude in relation to Earth. The AUSSAT satellites operate from nominal geostationary orbital locations of 150°E, 160°E & 164°E longitude for the future AUSSAT 3. The satellites are to be maintained such that the "sub-satellite point" will be within (+) or (-) 0.05° north/south & east/west of the nominal position. The "sub-satellite point" is defined as the point on the Earth's surface which is intersected by a line from the Earth's centre to the satellite.

The satellites themselves are of the Hughes HS 736 spin stabilised design. They have a diameter of 2.2 metres & weigh 660kg. The satellites incorporate two telescoping cylindrical solar panels & a folding antenna for compactness during launch at which point they will be 2.8 metres high. After the satellite nears its orbital position, the antenna erects & the solar panel deploys exposing the inner solar array. They then have a height of 6.6 metres. The dual polarized three-reflector antenna system provides seven transmit beams & three receive beams. Four of the beams give spot coverage of the western, central, north-eastern & south eastern regions of Australia. A fifth spot beam covers Papua New Guinea. The remaining two transmit beams provide continental coverage.

Each satellite carries fifteen 45 MHz wide transponders which pick up signals directly from either of the 2 main Earth stations (at Perth & Sydney), on frequencies in the range 14-14.5 GHz. These signals are frequency changed to the range 12.25-12.75 GHz. This combination of frequencies is known as Ku Band. After being frequency changed, the signals are amplified by either four high-power 30 watt or eleven low-power 12 watt Travelling Wave Tube (TWT) amplifiers. The receiver, frequency converter & TWT are collectively known as a "transponder".

The electrical power system uses high-efficiency solar cells which provide 1,054 watts of direct-current power at the beginning of life. Two nickel-cadmium batteries provide full power when the space craft passes through the Earth's shadow.

AUSSAT 1,2 & 3 have a life expectancy of seven years at launch. Presently, AUSSAT 1 is due for retirement in March 1993 & AUSSAT 2 in January 1994. Assuming AUSSAT 3's successful launch in the next few months as planned, it should remain operational until early 1997.

Next month we will take a look at why the "B-MAC" Transmission standard was adopted for AUSSAT instead of the normal Terrestrial PAL-D.

73's de VK2MT

PART 2 CONTINUED NEXT MONTH:



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	VK20B - 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. VK2BIT- PETER WOODS.
VK2OE- WOJCIECH TOMCZYK. VK2BMH- MARTIN HUTCHINGS.

REPEATER - CHAIRMAN: VK2CAG - GRAEME DOWSE.

REPEATER - COMMITTEE: VK2EXN - IAN CALLCOTT. VK2EMV - MORRY.v.d.VORSTENBOSCH.

VK2DFK- MIKE KEECH. VK2MT- ROB McKNIGHT. VK2BIT- 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. VK20B- KEITH CURLE. VK2ALU- LYLE PATISON

SUNDAY - EVENING - CLUB-NET - ROSTER:

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