

FEB 97

THE PROPAGATOR

THE NEWS LETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY INC

VOLUME 1

ISSUE 97 - Feb.

Welcome fellow

IARS members to the New Year. I trust that the Xmas period was enjoyable to you and your families, and hopefully Santa brought you that new rig that you had been eyeing off all year. The raffle of the FT 7 was drawn at the December meeting and was won by Harry VK2DEW. Unfortunately Harry has not been to well of late, but I hear that he is home and feeling better. Have lots of fun with the rig Harry.

Those who have paid their licenses recently will have noticed the decrease in the fees of a dollar. Ah well it's something. I suppose that the big news in the fee department is that the establishment cost for a repeater is now only \$50.00, or \$30.00 for a relocation of an existing service. I'm sure that RoB VK2MT will tell you more about this in his report.

For those that did not get to the December meeting, it was decided by the members present to give Phil VK2TPH the go ahead to establish a 4800 baud packet link between the Illawarra and Canberra. As Phil explained, it is not necessary for you too build a 4800 modem as VK2XGJ will have one as a port on his BBS. At the time of writing test were about to be carried out on the path between Illawarra and Canberra. The circuit boards for the modems have been obtained and are in the construction phase. Phil will keep us informed of the progress at meetings, and I'm sure will answer any of your questions at that time as well (after he finds out how to not blow up hot water systems. Ed.).

RAFFLE

Digital Multimeter
at the February
meeting

COMING EVENTS

February

If you plan to go to the Gosford Field Day, this would be your last chance to give Ken VK2TKE your \$10.00 deposit for a seat on the bus. First in with their deposit gets a seat. No deposit, no seat. See Ken at the meeting.

Pick up points for the bus on Sunday the 23rd of February will be as follows

- 5.30 am Ken VK2TKE's QTH.
- 6.00 am Fairy Meadow Baby Health Centre.
- 6.10 am Bulli Public School

Be on time or you will miss the bus.

INSURANCE

As was discussed at the last meeting, insurance that the IARS pays is only public liability. That is, if we drop something or if someone drops on a member of the public in any of our activities, we are covered by insurance. However, if we injure ourselves whilst doing club work, we are not covered by any insurance through the club what so ever. If someone falls off a tower doing repeater work, then they will receive no compensation at all.

The WIA has been looking at various insurances, and says that it has an insurance package available for around \$100.00 a year. This will cover any of us on a club activity for injury and loss of earnings. There are some requirements which should be available at the next club meeting. There will be a discussion on insurance at the next meeting and what we are covered for,

but at this point, if we decide to take the extra package offered by the WIA then it would mean a yearly fee increase of two dollars per member to cover the extra premium. See you at the meeting.

Sponsor a Repeater

Here is an interesting idea that was raised at the last committee meeting. In an effort to maintain the terrific services offered by our repeater networks, it is necessary to pay \$50.00 per repeater license. No longer are repeaters co-sited under the one call sign. Each repeater on its frequency must have a separate license. Two repeaters at one site, two lots of fifty bucks. Establishment cost for a repeater is now only \$50.00, or to move a repeater only \$30.00. The idea was that individual club members could sponsor a repeater. Here is how it would work .

Repeater license fee is \$50.00. You pay the \$50.00 and get your club membership for free. Acknowledgment that you are the repeaters sponsor on the back page of the propagator. If there is any interest in this idea, it will be brought up at the next meeting.

We have the opportunity for a 6M repeater as Simon VK2XQX has converted a number of "E" band 828's, one of which could quite easily be turned into a repeater. If you want any info on converting the "E" banders to 52 Megs, there should be on to view at the next meeting.

35

Years

As far as we know the club as it is has been around for 35 years. If you have any idea on something special That we can do, bring it up at the next meeting.

11/02/97.

MORSE CODE

The battle has been raging for quite a while now. The pros and cons each offer valid points for the removal or retention of Morse as a requirement for a Full Call License.

I am not going say here whether it should go or stay, but I do hope that when those that are delegated to speak on our behalves to the relevant bodies, have a balanced and fair representation of the amateur fraternity to take with them.

Before the next WARC comes up I hope that the club will be asked what kind of for and against we have. To give the committee an idea would you please read the following carefully:-

a) If you think that Morse should be retained as a requirement, please contact Brian VK2UBF on Telephone (042)672296 or 146.850 or 438.225.

b) If you think that Morse should be dropped as a requirement, please contact Simon VK2XQX on Telephone (042)836107 or 146.850 or 438.225.

The number of responses in total versus the number of club members will be assessed to see if it is a representative number.

CAVIONS IS IT GOING ?

You have probably heard the talk that Cavions was being sold. Well as I write this the keys have already changed hands. The new owners,

Alex and Rosanne Bortignon said that they would continue the fine tradition set up by Fred. They are thinking of moving the Electronic Shack from the back to the front and having it open 6 days instead of only 1. I was also told that they are keen to get more preloved goodies that we all like to poke thru. They will be having a bit of a clean out in the next month, so it might be time to drop in and say hello. Never know what you'll find when they start moving stuff around. For the phone number and address, see the add in this newsletter.

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10 Ghz EME CONTACT

VK2ALU and G3WDG on 18th August 1996.

Project Background

Nearly 4 years ago VK2ALU commenced working on the present 10 Ghz EME Project. In October 1994, using a 1.75 metre dish, the first 10 Ghz EME contact was achieved, with WA7CJO. However it was realized that this antenna was too small for useful contacts with other stations. To fulfill the need for a larger dish - in January 1995 a firm in Sydney generously provided a 3.7 metre Andrew Ku band dish along with its Gregorian subreflector, but not the 11 - 14 Ghz corrugated feedhorn, so a pyramidal feedhorn is currently used instead. As a lot of help had already been received from Charlie, G3WDG, in UK (also others, like Kent, WA5VJB, in USA) it was decided to "try to stretch the distance record a bit" by attempting to make a contact with G3WDG.

The Test on 18th August 1996.

After a number of attempts and replacement of the TWT amp. by one loaned by G3WDG, a successful test was carried out on 18th August 1996 - with assistance on the day from IARS members VK2UBF (who has helped on each of the tests this year) VK2KTM, VK2ZWG and VK2CRM (who acted as "2nd Op").

G3WDG gave me "M" copy, but he was "O" copy here. As it had taken only 25 minutes out of our 50 min "common moon window" to complete the contact, we set up an additional test with Petra, G4KGC, (wife of G3WDG.) It took only 7.5 mins. to complete the whole sequence required for a valid contact with G4KGC and signals were "O" copy (quite good EME copy) both ways throughout this test - perhaps because the moon was at a little higher elevation (8 deg) in UK by then. We had both checked our location lats. and longs. using GPS receivers and, using the VK3UM bearing and distance computer program, calculated the distance as 17000.4 kilometres. An interesting point was the additional noise which we had to contend with, using such low "take off angle" path elevations. I had rain showers in the signal path and heard rain scatter effects at one time during the test (My reception on one of the earlier tests was severely affected by rain scatter from a thunderstorm in the path close to G3WDG's location)

Construction Work and Test Preparation Work.

With welding work being carried out by Mike VK2DFK (without whom the Project may not have been completed) - a special trailer was designed and constructed in order to move the dish from a suitable "stow" position at the side of the house to the only place on the property where a gap in the trees allows the western horizon to be seen. This location is on the front driveway, near to the front fenceline. We initially manhandle the trailer to a point where it can be hitched to a tow bar on the front of my car, then tow it the rest of the way. Of course it can only be left there over the test period, so we have to get it all back to its "stow" position beside the house straight afterwards - the "stow" location is also out of the worst of the wind and more out of sight of passers-by, neighbours etc.

The EME setup is operated from inside my garage, under the house and about 25 metres from the dish - by means of some 60 cores of control and 3 coax cables. I get one of the guys to act as "second op" - whose sole job is to track the moon using moon noise during the 2.5 minute receive periods. During the intervening 2.5 min. transmit periods a "home brew" auto tracking system takes over to keep the dish "on the moon" to within 0.17 degrees tracking error (it has 0.55 degrees half power beamwidth so signal strength is approx. 2dB down at 0.17 degree error!).

I have received a lot of assistance from amateurs, both in VK and overseas to get this system "up and running" and gratefully acknowledge this. The polarization is vertical at present (as required to work into Europe) so some mods would be required to work into USA/Canada. I only get 1-2 days per month where I can use the gap in the trees for EME into Europe. I can rotate the dish on the trailer in azimuth to "look east", but have not yet tried any more tests into USA or other countries as I want to do some small mods to equipment first - and have been "having a break" for a while in order to catch up on some long delayed non-radio work before getting back into the 10GHz EME Project.

Lyle VK2ALU.

REPEATER REPORT

November-January 1997

Welcome to 1997, I hope Christmas & New Year were good for you all. The IARS Repeaters have all been behaving themselves since the last Repeater Report, allowing the Rptr Committee a well-earned break.

VK2RMP
(Maddens Plains)
146.850 - This Rptr is currently working very well. We regularly get stations from Cessnock & north of Port Stevens, Lithgow, Goulburn to Batemans Bay. We are very pleased with it's coverage & this is confirmed by the many unsolicited complimentary reports from users. We've even had a station from Canowindra (out near Forbes) calling in.

On Christmas Eve, 6850 & it's linked brother (or should that be sister?) 6700 Rptr went none stop for about 5 hours due to some very good coastal ducting. Stations from as far north as Grafton to Merimbula in the south were coming through

having a rather large "round table" chat. I lost count at about 30 call-signs. The N-Connector Helix plug mentioned in the last Report that had got water into it was fixed during a site visit on the 30/10/96. Removed the old connector, re-cut & prepared the helix for installation of a new LDF 5-50 plug. This proved rather difficult at 140' with strong winds blowing & cooling down our 150W soldering iron, which was incidentally connected to 200' of extension cord leading down into the building for power. We were eventually successful by doing the soldering up inside a stretched out jumper inches away from bare skin.

A new DTMF Control Unit has been built & installed allowing full remote control of both the VHF & UHF Rptrs, the 6700 linking, the WIA Broadcast RXer & the Talking Clock.

Over the holiday period there has been a heap of users visiting the south coast for a break, but maintaining

contact with their friends (mainly in Sydney), using the linking between 6700 & 6850. If they weren't impressed enough with the linking of the two 2m Rptrs (& they were), they were VERY impressed when they had stations from VK3,4,5,7 & ZL calling in on 6850 courtesy of the Club's 10m Rptr operating in simplex mode.

The 10m Rptr was connected remotely to 6850 (& 6700) on the 31/12/96. By coincidence, a very nice Sporadic E opening across eastern Australia & New Zealand over the next 4 days, made for dozens & dozens of 10m FM contacts for users of 6850. At one stage on Saturday morning the 4/1/97, there stations from all of the above call areas lining up to talk to the 2m users here on the south coast, it was quite fascinating listening to the conversations. The stations on 10FM sounded as clear as the 2m users & sometimes even better.

The 10m Rptr was put on the air for final testing of the unit before

installation at Mt Murray & Knights Hill. Because of the small split between RX & TX frequencies of only 100kHz, the Rptr could only operate in simplex mode, not it's normal duplex mode. This mainly just means that the 10m users aren't being "repeated" back onto 10m, only across to 2m. When it's put into duplex mode, the number of DX users will increase. (Until final installation of the 10m Rptr, the connection to 6850 is only turned on over the weekends.)

On the 21 & 22/1/97, a very nice trans-Tasman opening on 2m (& higher freqs) was open. Quite a few ZL's called in directly to 6850 on 2m, raising quite a few eyebrows. Initially, local users thought the ZL's were coming thru' via the 10m Rptr link (which was actually disconnected at the time), but the ZL's were quick to inform our local users that they were actually on 2m.

438.725 - Hopefully by the time you read this, this Rptr will be on

the air from Maddens Plains. The Rptr is presently sitting beside me as I type this Report, currently undergoing the "burn test". It has been continuously TXing now for 4 hours with no sign of concern.

This Rptr is a converted U-Band 828 as is 8225, but it needed a little more work than 8225. The RXer front-end could not be peak tuned. To rectify this situation, the 6 helical filters in the front-end had to be pulled apart & an extra 1/4 to 1/2 a turn of wire wound onto them. No problem you say, but the wire is not much thicker than human hair & is wound on a former 7mm high by 3mm wide. Trying to solder a piece of wire about 3 to 4mm long onto the filter's thin wire was quite a challenge, but it was worth it as the front-end now tuned beautifully. A sensitivity of 0.3uV at 12dB SINAD was achieved. Also the Exciter VCO would not lock on the TX frequency, being too far removed from

it's designed frequency range. This was easily fixed with a 2.5pf cap across the VCO's tuning capacitor. Almost 30 watts is available, but it was set for 25.

Coverage from this Rptr should be similar as 6850, but due to the higher frequency, will not have the "penetration" that VHF provides.

VK2RIL (Sublime Point) 147.275 - This Rptr is back on the air, but in a different configuration. Instead of being a positive offset Rptr, it is now a negative offset system, why you may ask...

The IARS was still holding the licence for 7275 & there had been a few members mentioning they would like another VHF Rptr, but a "local" one (unlike 6850's DX-type coverage). We tried RXing on 147.875MHz, but the Telecom produced Pager intermod was worse than ever, holding the Rptr's RXer mute open almost continuously. In years past, even with the help of SMA, the intermod interference could never be

fully resolved. As there are no other 2m Rptr frequency pairs available in this region, we decided to try something unusual to help rectify the interference. The IARS is "licensed" to TX on 147.275MHz from Sublime Point. We also have 147.875MHz licensed as a RX frequency, which the SMA says provides the licence holder with protection from interference. Well this is total crap, because for 7 years we

fought to have our licensed RX frequency cleared of harmful & identifiable interference, but to no avail. Although we have 147.875 registered as our RX frequency, there is nothing stopping you RXing any other frequency, of course SMA will give you no protection on this new frequency (big deal).

So instead of the Rptr RXing 600kHz above it's TX frequency (positive offset), it now receives 600kHz below the TX frequency (negative offset). Most radios (sorry Lyle), allow you to freely select positive or negative Rptr off-

sets. The frequency you TX to the Rptr is now 146.675MHz, which is the output of the Sydney RTTY Rptr, but due to the directional antenna system on 7275, we have never heard their transmissions. The way we've configured our Rptr, allows us to still TX on our licensed frequency, but now RX on an interference-free frequency.

The WIA-suggested method of overcoming pager interference is to reverse the input & output frequencies. This has several disadvantages which we disliked, for example: The user's radios would all now be RXing on 147.875MHz coping far more pager crap as their RXers have far less selectivity than the Rptr's RXer; The possibility exists that with a lift in conditions, a "reversed" 7275 would hear a "normal" 7275 & this would cause a lock-up condition of both Rptrs, eventually timing out; The cost - we would have to buy 2 Crystals (we only bought one for the RXer) & also then having to get SMA to do

all the paperwork to change out licence, until recently, this would have probably cost in excess of \$200.

The only problem that can be caused by us RXing on this new frequency, would be us hearing the output of the 6675 Rptr & if this were to happen (& it never has), it would only cause us a problem, not another Rptr.

The "left-handed Repeater" (as Brian calls it), is operating into a 3 element Yagi facing south from Sublime Point, putting a pretty strong signal down thru W'gong, so give it a go.

VK2RAW (Mt Murray) 147.575MHz - As from th 31/10/96, we resurrected the Packet digipeater at Mt Murray. The system is a MFJ 1270 TNC, a Philips 828 using the old 7275 27' long colinear antenna. At last count, the system had "heard" 59 other digipeater/nodes. It was certainly hearing well.

Unfortunately, about a month later, the system's coverage was

noticeably reduced. A visit to the site, found that the colinear's VSWR was about 8 to 1. Unable to fix at that time, so the system was connected to a 3 elmt yagi, facing south so as to provide limited but still useful service. Chris & Phil are planning a trip to Mt Murray to lower the antenna & hopefully fix. This may have taken place by the time you read this.

The 10m Rptr's RXer will be installed here soon. Before installation however, a DTMF Remote Control unit need to be built to allow control of the 10m RXer, in case strange signals come in & lock-up the system. For convenience, the 10m RXer's mute level will be controllable remotely, allowing us to leave the Rptr on, but with the mute higher if a rogue signal appears on 29.520MHz.

VK2RUW (Knights Hill) 438.225MHz - This Rptr is performing very well. Many stations up the coast from Gosford & Newcastle regularly call in, the furthest north be-

ing Port Stephens. Due to some changes at the site, we had to reconfigure the Rptr's antenna system. The System now TXmits from the 200' level via LDF 5-50 heliax & RX at the 100' level via LDF 4-50 heliax then feeding a 12dB gain pre-amp. Both RX & TX antennas are 17 elmt Yagis. This configuration has dramatically increased our northern coverage, but has reduced the coverage to the Shoalhaven, but many stations down that way still have access, which is somewhat surprising.

At present (30/1/97), VK1RGI at Mt Ginini is off the air. It was removed from service late December, as a new Philips 815 Base Rptr is to be installed shortly. The Goulburn Rptr is still connected OK, but Ian (AIJ) is going to retire their 8375 Rptr in favour of another Philips 815 Base Rptr. (We also have an 815 unit set aside for future conversion, so all three linked Rptrs would be the same units.)

The 10m Rptr's

TXer will be installed shortly. Until the Mt Murray Control Unit is installed, we may run the Rptr with the TXer at Knights Hill, with the RXer at my place to allow for full control till it can be put at Mt Murray.

VK2RIS

(Saddleback Mtn)

146.975MHz - The Rptr is still performing well. Unfortunately, a visit was necessary on the 18/1/97 as the antenna system developed a bad desense & rectification problem, due to loose brackets & connector. This site is to undergo some very big changes in the not to distant future. Vodafone has built a new mobile phone tower for themselves & Optus, & the old Optus tower is going to be moved to allow other users of the site (like us), to position our antenna system about 60' higher than at present, hopefully giving better coverage to the north into W'gong.

Well, that's about it. Any ideas or questions on our Club's Rptr systems, don't hesitate to contact the Repeater Committee.

THE ILLAWARRA AMATEUR RADIO SOCIETY SOCIETY INC

PO BOX 1838
WOLLONGONG NSW 2500

REPEATERS

| <i>Call</i> | <i>Fx</i> | <i>Mode</i> | <i>Location</i> | <i>Linked to</i> |
|-------------|-----------|-------------|---|------------------|
| VK2RMP | 146.850 | VOICE | MADDENS PLAINS | VK2RMU |
| VK2RIL | 438.725 | VOICE | SUBLIME POINT Maddens Plains | |
| VK2RIS | 146.975 | VOICE | SADDLEBACK MT. | FUTURE |
| VK2RUW | 438.225 | VOICE | KNIGHTS HILL | VK2RGN VK1RGI |
| VK2RUW | 29.620 | VOICE | KNIGHTS HILL | OFF AIR |
| VK2RAW | 147.575 | PAKET | MT. MURRAY | |
| VK2AMW-1 | 144.625 | PAKET | WOLLONGONG UNI | |
| VK2XGJ | 144.700 | PAKET | DAPTO | |
| VK2XGJ | 439.075 | PAKET | DAPTO | |

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