

The Official Newsletter of the
Auckland VHF Group Inc.
Spectrum 2008



Prof. Bryony J. James B.Eng (Hons) Bath PhD University of Auckland
With Rod ZL1CD and Grant ZL1WTT and Carbon Arc device



Auckland VHF Group Inc.

Branch 66 NZART

PO Box 10138, Dominion Rd, Auckland 1446

Clubrooms: Hazel Ave, Mt Roskill

<http://www.qsl.net/zl1bq>

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ATV Interest Group					http://www.qsl.net/zl1qf/atvug/ATVusers.html

Club News and Net:

The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

Membership of the Auckland VHF Group is via subscription; \$30 within the Auckland free dialling area, and \$25 outside. It is expected that members of the Auckland VHF Group Inc. are also members of NZART, as we are branch number 66 of NZART.

SPECTRUM is the official journal of the Auckland VHF Group Inc.

Opinions expressed are those of the authors and do not necessarily reflect club points of view. The closing date for SPECTRUM articles is the Monday 7 days before the following General Meeting. Articles may be submitted to the Editor.

Coming Events:

NOTE the change to the SECOND MONDAY of the month.

Meeting Notice:

Monday 8th August at 19:30, at the Clubrooms, Hazel Ave.

Topic:

“From the Eidophor to the DLP”

A look at the Electronic Projector of today

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From the Chair - September 2008

Last Meeting.

A trip to the University of Auckland to visit their Research Centre for Surface and Material Science (RCSMS) took place on the evening of Monday August the 11th.

Professor Bryony James took us into the intricate tiny world of surfaces, through the very powerful eye of the electron microscope. Firstly explaining how the Electron microscope operated, and also explaining how this one at the University gave an advantage over other units that are in New Zealand.

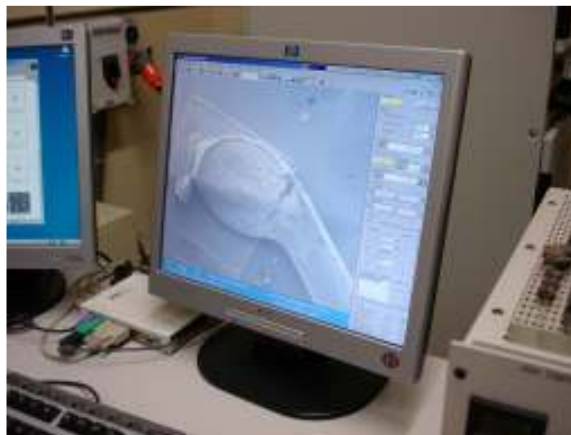
Several samples were prepared and shown, including an integrated circuit that looked as if the legs were well attached, but upon closer

examination, revealed that one leg was about to fully fracture and part company!

The Electron microscope was even able to give a three dimensional view of a crystal structure, giving the most dramatic view of hills and steep gullies, crevices’, etc.



The Research Centre is unique in materials science and engineering in NZ. It not only provides research facilities for 8 University Departments, but also operates commercially, consulting with over 40 companies each year to assist with their materials characterisation and research needs.



Many people use the facility to learn about the fusion of surfaces and how best to treat or

handle processes during manufacture. There was no doubt that Bryony knew her stuff, and how to get answers from the myriad of equipment available within the department.

Everyone enjoyed the visit and learnt a lot from it. Many thanks to Bryony for showing us around the facility, and demonstrating what it could do for us.

This was a visit into a different sort of world. A very small one!

Working Bees:

Hamilton Sale Saturday August, 9th

The Hamilton Equipment sale kicked off again on Saturday August 9th. This year the trading table was better organised than usual with a lot of stock being reorganised, and the miscellaneous stuff being sorted better before the start of proceedings. Dave Dingley ZL1TIA provided the transport once again, and after the pack on Friday afternoon, all and sundry headed south on the Saturday morning. After breakfast at the top of the Bombay Hills, everyone made their way to the Claudelands show grounds where the work of assembling the trading table commenced. Amazingly we finished setting up the display right on-time, so business began on schedule

It was notable that while there was a wide representative of people from around the country present at the sale, the actual numbers attending, including the sellers, was down on previous years. To some extent some of this could be blamed on high fuel costs, and the fact that not many people have the spare cash these days. Never the less, a lot of useful junk was cleared from our display with some very good bargains had.

The overall result for us was down on previous years, but resulted in approximately \$400 going towards the groups operating expenses.

From an operational view, the day went extremely well, thanks to all the assistance received from many who helped with the pack,

the reassembly, the sale, the pack at the end of the sale, and the unpack and reinstallation back at the club rooms at the end of the day. A good time was had by all and thanks must go to all those who assisted us in any way they could. It was very much appreciated by the committee and those who spent many hours getting things ready before hand. Thanks to all.

Saturday 16th August

The Quarterly meeting of the Auckland VHF Groups AREC group was held at 10.00 am. This was another very positive meeting with some excellent ideas that need to be followed through in the near future.

One that will require a bit of organisation before it can be announced in detail is the idea to hold a contest style practise session, possibly involving a range of disciplines and including such things as points for message handling during a mobile rally or DF Hunt! The actual details need work, but the idea could become a regular challenge with points awarded to various branches or participants. More information to come.

Merv ZL1SK has produced a Profile sheet for each member of AREC (regardless of the branch association) for the sole purpose of allowing their respective section leaders to have readily available information on the operator as to availability, equipment availability and QTH readiness, location, etc, in case the balloon should go up tomorrow.

This is to provide a resource that the section leader can call upon instead of having to rely on local knowledge as to where, what, and whom can be called upon for a particular situation. The filling in and supplying of information is voluntary, but remember that without this resource, your section leaders may not know what capability you have for an emergency, and therefore may not call upon your services when in fact, you could be useful and willing to provide a service. So if you do not fill out the Profile sheet, do not blame the section leader if they do not know what capabilities you have.

Because the weather was very uncertain, and we had to book the cherry picker in advance, the working bee aspect of the day was postponed. It will be rescheduled when the weather settles and the ground also hardens up a bit.

ZL1BQ WEB SITE.

The current auction has been going well, and should finish around the 9th September. More items of a different nature may soon appear, so keep an eye on the Web site for details later in September.

Meanwhile, the trading table is starting to work very well via the web site. You can now purchase stock from the trading table on-line, provided you have set-up an account first.

This requires team work to make it run, so thanks must go to all the individuals involved in making it tick over. Without each ones contribution the operation would not operate efficiently. Remember these Guys are volunteers and give of their spare time so that you can enjoy the service that has been made available. So please be kind and understanding if the odd thing goes wrong.

As the on-line trading table progresses, there will be small things that need to be straightened out and processes improved as more experience is gained. This was to be expected with such a large undertaking, but the signs are good and things are moving along reasonably well already – and that is only after one month of operation! So well done team and keep up the great work.

CLUB ROOM MAINTENANCE

More work is being done to keep the rooms up to a nice tidy condition. Vaughan ZL1TGC has fixed up the hot water cylinder wiring so that it is now well sign posted and easily operated. The committee has approved the kitchen to get a paint job, and have new curtains fitted. We are also looking at some facility to keep food hot.

With the possible dismantling of the Scout Den next door, our club rooms will become the only one left on the section, except for the Tennis Club rooms next door, so rentable space will become a premium in the area.

REPEATER 670

The receiver failed in the 670 repeater at Ruaotuwenua after an AREC net one Thursday evening. As the unit had not had a birthday for 15 years, the opportunity was taken to remove all the equipment and give it a decent overhaul.

Over the coming weeks when the overhaul has been completed, the unit will be reinstalled in a different rack and the whole installation improved somewhat. We may have to consider a replacement aerial system for the repeater and investigation work is continuing on the best way of doing this. All of this was planned work for later this year anyway, and has been brought forward with the failure of the receiver section.

ATV REPEATER CHANNEL 39 – A Major!

As reported in these columns last month, this project has now become a priority. Already the ATV equipment has been removed from site and is being overhauled. Already the additional Linear Amplifier stage has been installed and that part of the system is under test. There is still a lot of work to be done in this area yet and progress is steady.

The removal of the Aerial Gantry still awaits the weather. The ground is still too soft for a cherry picker, or for work to be done around the pole. At the moment it looks as if this may not be able to commence until mid October, unless we have a very dry spell from here on – which is most unlikely!

Grant ZL1WTT has been appointed by the committee to be the project manager for the current work. He is still looking for volunteers, helpers and any specialists who can assist with the completion of the first two stages. Constructive help in any form will be useful, so

please do not hesitate to step forward and offer your services in any way you can – even from a distance. This type of assistance will be appreciated by all concerned – including our viewers.

The completion of the two stages will see the ATV transmitter restored to a fully operational station, something that the Group has been trying to establish and complete rather haphazardly over the last five or so years, supported by a considerable amount of funds from the Group.

With everybody's help, assistance and support, we can clear this one out of the way so that the site runs without serious hitch for the next five years. - At least, that is the aim. Let's all get behind the project and get it sorted. With your help and enthusiasm we can complete this lot (weather permitting!) before Christmas!! That's something to aim for – so that we can then move on to the next project in our sights!

AREC WEEKLY SKEDS

The Thursday evening AREC Sked at 19.30 hours has been temporarily returned to 147.400 as the starting frequency while 670 is off air. So keep in touch with what's happening by joining the net and getting the latest on the AREC front.

There are some other activities coming up in September and beyond, that discussion and the requirements for these events will be put over this net. So if you haven't joined in for a while it might pay to take a listen again and catch up.

D-STAR.

Unfortunately this project has been delayed because of other activities that were found in need of urgent attention first, particularly areas that look after the Groups income and provide for our ability to offer services. However the aim is still to plough on and get this particular project under way, even though it means our original time table is slipping.

A case is being prepared so that we can go forward with fund raising. The case puts in

plain English, what the amateur fraternity is about, what it achieves, what services it provides for the community at large, what benefits it can provide and why it needs support financially. There is still a lot of preparatory work to be done before the case can be brought before the fund raisers. There will also be a need to get support from some of the local agencies such as Civil Defence and the like, to open up other avenues of finance.

The fund for D-Star is open, and has already received its first donation. Well done and thank you. The donation is very much appreciated.

MEETING PROGRAM CHANGES:

The original meeting program was put in place in the first quarter of the year. Inevitably things change as the year progresses making it necessary to review the program from time to time.

The last quarter for 2008 is no exception and the revised program for the remainder of the year - and looking forward into the New Year - is a bit like this:-

- September:** Electronic Projection Techniques.
- October:** Tait, The development of digital radio techniques for commercial RT Users.
- November:** AGM and Murray Greenman ZL1BPU on a New Narrow Bandwidth Digital Picture Transmission Technique.
- December:** Christmas Party for 2008.
- January:** Hello 2009! A Barbeque
- February:** KiwiSAT – the start to the first New Zealand Satellite launch Countdown
- March:** Agilent – The latest developments in Test and measurement Techniques
- April:** Another visit – yet to be arranged.
- May:** About Batteries – From the computer to the UPS.

Of course all these are subject to the speakers being available on the night. Being people who have specialist information and skills means that they are in high demand work wise, and therefore situations do crop up that prevent them being able to fulfil our engagement. After-all, they have bills to pay as well!

THIS MONTHS MEETING:

Some of the subjects we have presented are a little distant from communication. Yet the electronic industry started from radio, and a lot of the developments that have occurred over the past 80 years or so have been directly involved with communication of some form or other. Television is such an example.

Ever since the birth of Television, inventors have sought ways and means of being able to show to audiences, live events that are or have been occurring some distance away from the viewing point, or even from another part of the world.

To invent and manufacture an electronic projector that could do this is an interesting story, which continues today.

The presentation at the next meeting on September the 8th, at the Club Rooms will cover the development of the electronic projector through to the present day; discuss the various types and methods used, and some of the issues still challenging the manufacturers.

“From the Eidophor to the DLP” *A look at the Electronic Projector of today*, is the subject at our next meeting.

We look forward to seeing you all there.
Best 73's
ZL1JD

The Contest Calendar

The next contest is the **Microwave Contest**

All bands 614 MHz and up.
Saturday 4th & Sunday 5th October,

Field Day Contest

All bands 50 MHz and up.

Saturday 6th & Sunday 7th December,

For all contests, the operating periods are 1700 to 2300 on the Saturday, and 0700 to 1300 on the Sunday, NZ local time.

The rules are available at:

<www.nzart.org.nz/nzart/update/contests/vhfcontestrules0606.html>

All contest logs should be sent, to arrive within two weeks, to:

zl2wa@clear.net.nz

or:

Contest Manager

Wellington VHF Group

P.O. Box 12259

Thorndon, Wellington 6144

Attention Branches – VHF/UHF Field day

Hi all.

The VHF UHF Field day is creeping up on us. This year we would like some branch competition please.

It's easy to compete in. Find a friendly hilltop and work as many as you can. Even if you only go there with 50/144/432 MHz you can score really well with branch participation.

Branch 13 intends on going back up Taraponui this year. We would like to work more club stations this year. So now's the time to start thinking about getting a team together, and encouraging the locals for contacts.

If you do plan on going up, let us know.

From the Branch 13, ZL2AS Team.

Regards,

Warren Harris

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car cell 021-649284

RepcO Rally New Zealand 2008

Report by Ian ZL1AOX

The Repco Rally NZ was held on Friday 29th to Sunday 31st August this year.

At least seven members of the Auckland VHF Group took part in providing communications help either at the 5 km safety points, starts or finishes, at Headquarters' at Mystery Creek or mobile in safety vehicles.

There are approximately 80 Amateur Radio operators involved in the Rally so it is an important task for the AREC sections from Auckland and the Waikato regions.

In control of all this is Richard Gamble ZL1BNQ as the Rally Communications Manager, and he and his assistants are tasked with allocating operators to the various positions – quite a large and important job!

I was allocated two operating positions on the Saturday, one at SS 6 A and in the afternoon to SS 11 D.

Helping me and providing the transport was my Son-in-Law Luke, who arrived on Friday afternoon and we proceeded to fit out the Landrover Discovery with a VHF antenna, a roof rack to carry the poles, install the VHF and HF radios inside and two sets of large 12 volt batteries to provide power to the HF and VHF stations.

We left home at 05:20 am for the 100 km trip to our first stop at SS 6A, and arrived just as the sun rose. As we had been to this location before, it made it somewhat easier to set up as we now knew how the antenna was to be set up. After a brief chat to George ZL1TUX and Laurie ZL1ICU we had the antennas up and ready for transmission just over 1 hour after our arrival. The first of 106 cars flashed by at 10 past nine, followed by the sweeper at 11:27.

A quick pull-down, check that the site was cleared and we were off to the next site at SS 11 D about 26 km away.

The same procedure again but with an easier site for access and we were well ready for the next high speed car at 15:49. Sweeper came at 18:10 and we are on the road home by 18:30; again in the dark to arrive at 20:00.

Signals on 80 metres were excellent all day Saturday with S9 +20 most of day and S9 +40 later on Saturday on my Icom IC-706MKIIG. Communications were reported as very good over the three days of the rally, which makes life easier for everyone.

There were no major accidents/incidents and the only slight amusing incident involved the 0 car (again - it happened last year too!) which ran off the road near our Klondyke site. This car is the last and fastest of the cars to check out the roads prior to the “real” racers start.

Now we have to wait 2 years for the next one.

I use a flat top dipole for 80m with the centre about 7 metres above ground with similar poles at each end. The VHF antenna is mounted on the centre pole to gain as much height as possible to enable communications on simplex within the stage. I used a fixed length of about 5 metres for an end pole seen below leaning out to try and clear the very large Kauri tree.



In position at SS 6A



Position SS 11 D from the 100m pre sign.

AUCKLAND VHF GROUP (INC) BRANCH 66

MEETING NOTICE

September 8th 7.30 PM HAZEL AVENUE CLUB ROOMS

(Located behind the Scout Den at the end of Hazel Avenue)

Note the change to the previously advertised program:

“From the Eidophor to the DLP”

A look at the Electronic Projector of today

Since the birth of Television, the electronic projector has been an ongoing development until modern technology took over!

But is that the end of the story or just the beginning?

Not only a story to tell, but a look inside a modern day projector as well!

EVERYBODY WELCOME

The Auckland VHF Group has also invited the NZ Electronics Institute to join us at this meeting.

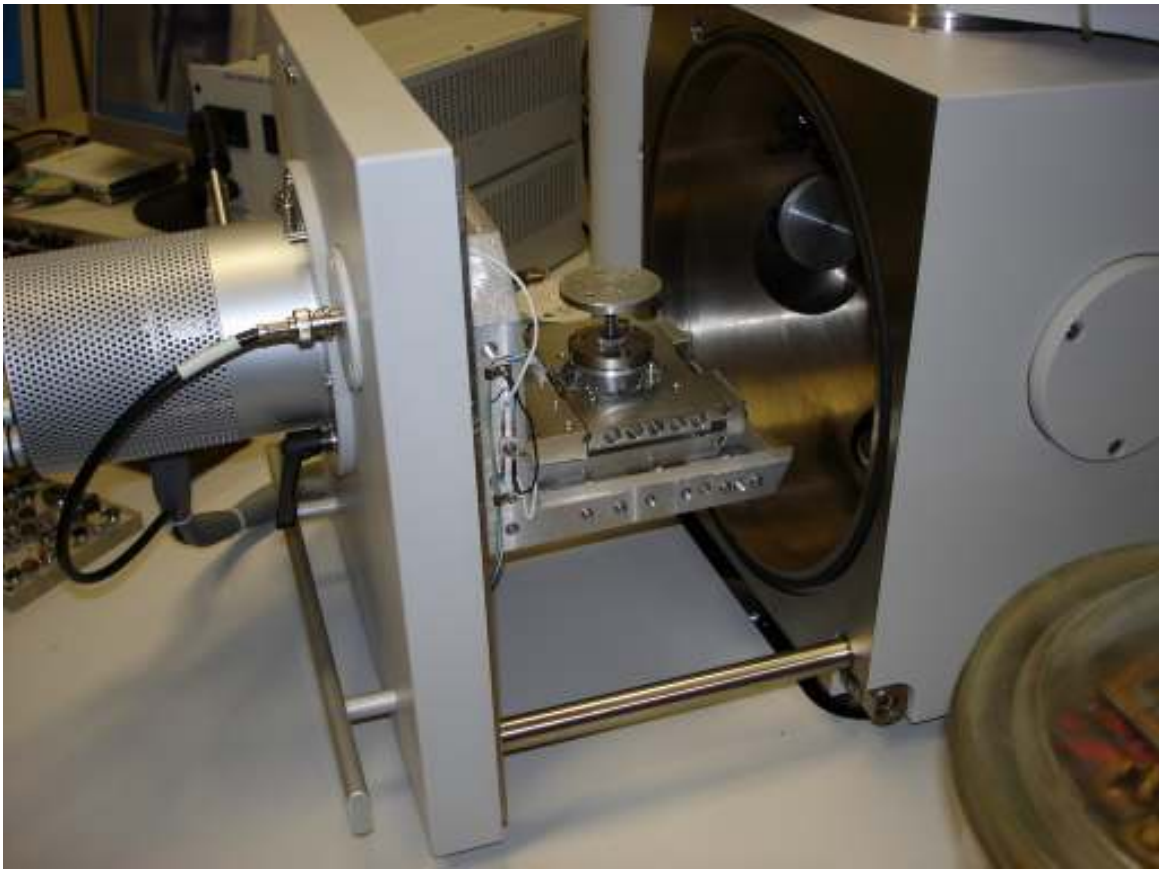
Photos from visit to Auckland University



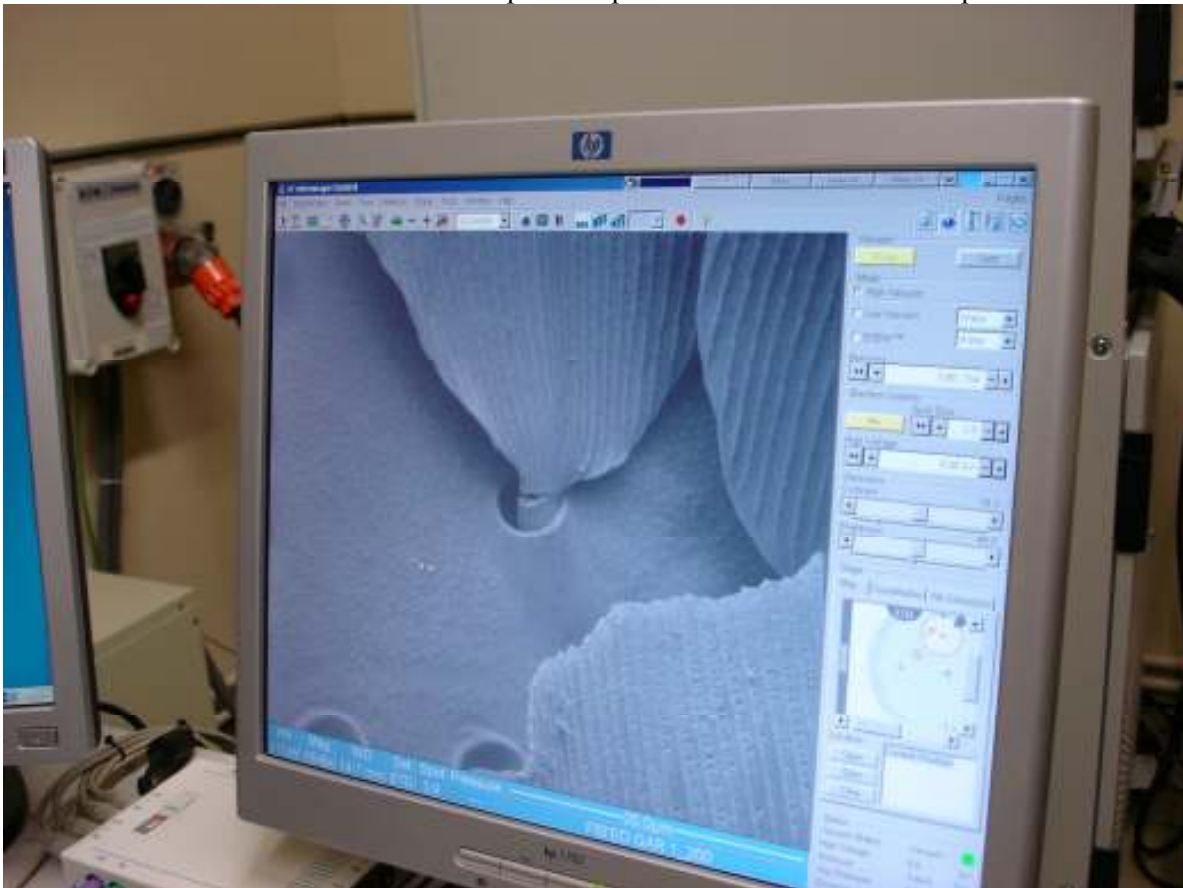
Professor Bryony James with Electron Microscope on right



Electron Microscope with display on left



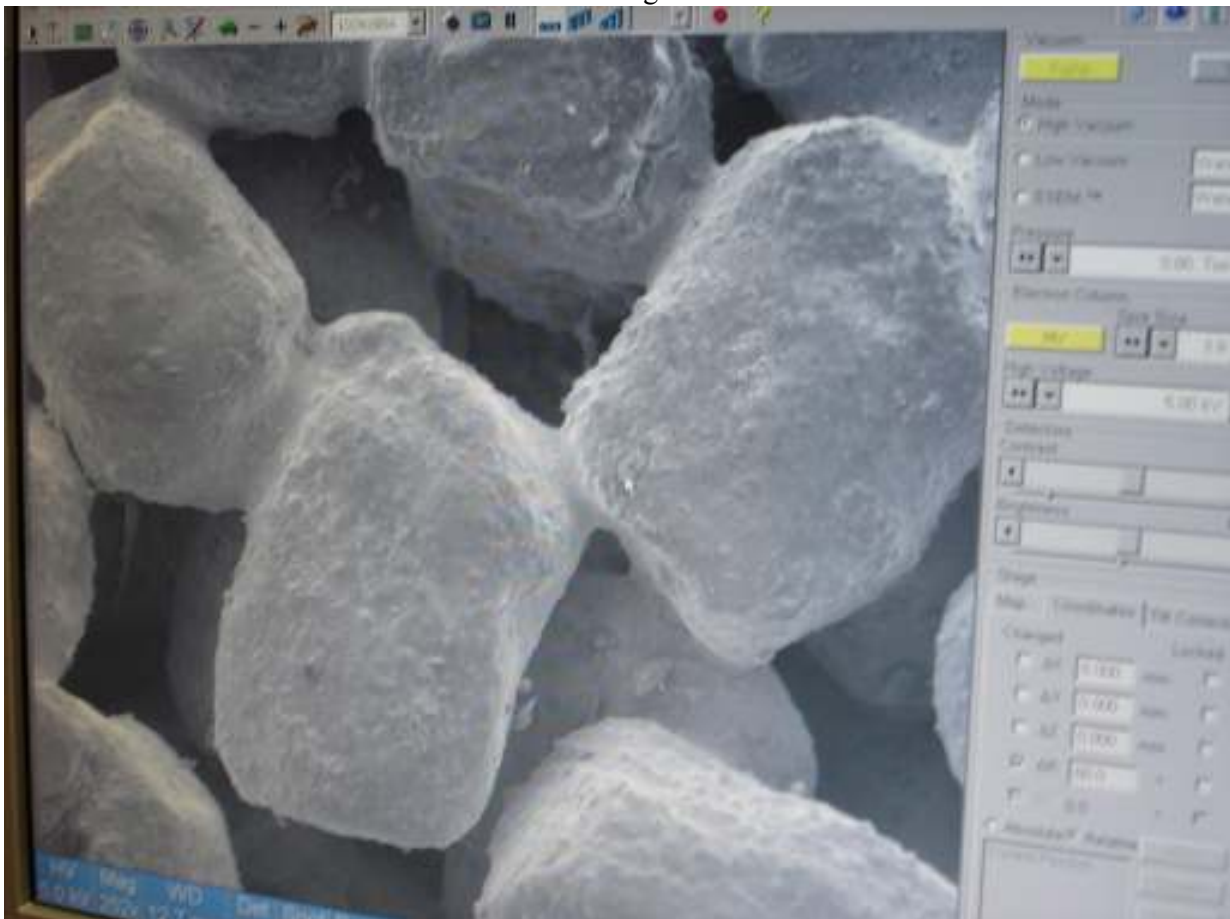
Inside of Electron Microscope. Samples are mounted on circular plate



Moth wing Scale showing how it is attached to wing. 6549x magnification.



Sand at 168x magnification



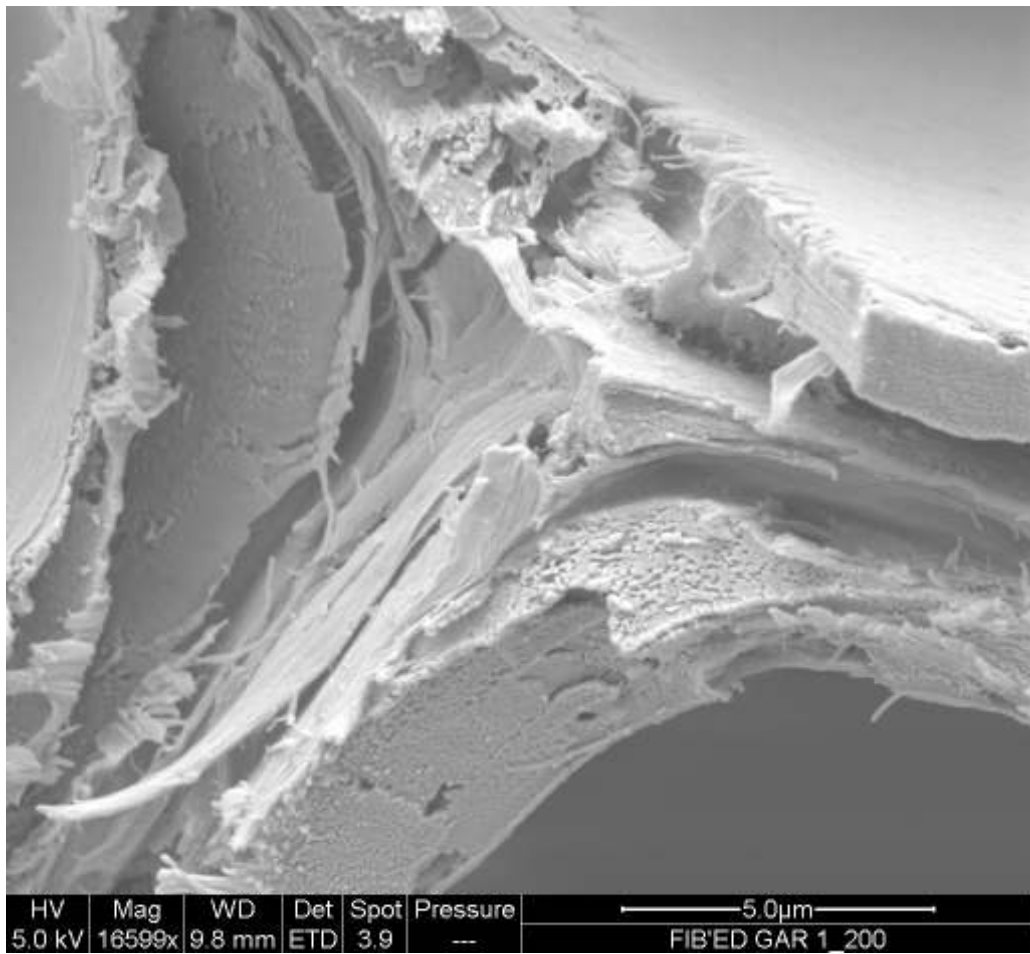
Sintered metal particles at 252x magnification



Paper at 177x magnification



Close-up of paper at 3442x magnification



Wood sample cut/broken viewed at 16,559x magnification



X-ray Spectroscopy. Sample is held in tube at right

Trading Table Specials – September 2008

MGF1302	Low noise GaAs FET Nf = 1.4dB @ 4GHz, 4dB @ 12Hz. [S.case]	\$15.00 each
BFR91	NS RF Amp. 5GHz 1.9dBn @ 500MHz [S.case]	\$2.00 each
MPS5179	NS TO92 12V 50mA 200mW ft 2000MHz Nf 5.0dB [S.5.7] RF Transistor. Use in UHF/VHF amplifiers with collector currents in the 100 μ A to 30 mA range, and in low frequency drift, high output UHF oscillators.	\$0.50 each
MRF237	NS RF Pwr. VHF 4.0W 12V TO39 [S.5.8]	\$3.00 each
3SK73GR	Dual-Gate FET N-channel 30V 7mA [S.6.7]	\$1.50 each

SMD RESISTORS – 10 per pack. Most are 1206 Format.

Values in stock: 22, 33, 49, 100, 270, 330, 390, 510, 1k, 2k2, 68k 100k Ohms.

10 per
packet.
50c per
packet
10 per
packet.
50c per
packet

SMD CAPACITORS – 10 per pack. Most are 1206 Format

NPO 50V working: 2.2pF, 6.8pF, 47pF, 68pF, 82pF, 270pF, 470pF
63V working: 10pF, 100pF, 1nF, 10nF, 100nF
10uF 25V electrolytic

Kitsets:

VHF/UHF Preamplifier Kit.

Parts, pcb and instructions to build a preamp for 2m, 70cm,

Now includes instructions for using a SMD package transistor, e.g. the BFG67 in place of the BFR91A supplied with the kit.

\$18.00 each

Available NOW: T connectors as recommended for AREC equipment.

\$2.00 per kit

Moving Coil Meters - 500 μ A movement with back lighting via separate terminals.

Two scales 0 – 30 and 0 – 100, plus a battery “replace/good” indication.

Scale can be removed/reversed for different uses. A very versatile meter.

\$3.00 each

Integrated Circuits

ZSM560 under voltage monitor IC's. 4.6 volt threshold for 5 volt systems.

Spec sheet available on request.

Packet of 5

\$2.00 per
packet

HEF4060B SMD IC's. and HEF4060BT 14-stage ripple-carry binary

counter/divider and oscillator. Spec sheets available on request.

\$1.00 each

74HC74D SMD IC's Dual D-type flip-flop with set and reset; positive- edge

trigger. Spec sheets available on request.

\$1.00 each

LM393D IC's (SO8 package) and LM393DT Low Power Dual Voltage

Comparators. Wide single supply voltage range or dual supplies: +2V to +36V or +/- 1V to +/- 18V. Spec sheets available on request.

\$0.50 each

74LS38N IC's Quad 2-Input NAND Buffer with Open-Collector Outputs. Still in original RS packets.

\$1.00 each

- GPS Receivers** – 12 channel GPS receivers in plastic dome mounting with DB9 Connector. RS232 output on pins 2, 3 and 5 and power +ve 6-12V on pin 6. NMEA output sentences. \$120.00 each
- GPS Patch Antenna** – with Macom SO8 preamp 26dB @ 1.575 GHz, 1.15 dB NF. It still has 20dB gain @ 1.3GHz but the noise figure is rising a bit. Fitted with 3m of RG174 cable and MCX connector. No housing/case for patch antenna. \$10.00 each
- GPS Patch Antenna** – as above but in plastic case. Fitted with about 3m RG58 coax cable and SMA connector. \$20.00 each

Mail Order accepted. Please forward your mail orders to Auckland VHF Group, PO Box 10138, Dominion Road, Auckland. Or Email to john.dunn@clear.net.nz.

Please Note: For mail orders please add \$5.00 for packing and postage.

NEW INTO STOCK – LIMITED NUMBERS – A/V Distribution Amplifiers.

Talia professional Audio/Video Distribution amplifiers in a single 1U rack unit. 75 ohm looping video input with 10 separate outputs, all on BNC connectors. Stereo balanced or unbalanced audio input (RTS Jack's) with 10 stereo outputs on RCA connectors. This will be the last of these.

Limited numbers available. \$40.00 each.

New Stock: “T” Connectors:



“T” CONNECTORS BACK IN STOCK

Packaged into kits of 1 male holder, 1 female holder,
2 Male spade connectors, 2 female spade connectors.

Ideal for interchanging Equipment between power supplies etc.
As used by many for their AREC Equipment.

ONLY \$2.00 per Kit.