



QSL PE



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PORT ELIZABETH AMATEUR RADIO SOCIETY

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FEBRUARY 2004

MONTHLY GENERAL MEETING

The monthly general meeting of the PORT ELIZABETH AMATEUR RADIO SOCIETY will be held on Thursday, 19 February 2004 at the St Hugh's Church Hall, Newton Park, starting at 20:00 (8 pm).

Al Akers ZS2U will talk to us about various antennas that he has put together, especially the one that appears in this issue of QSX. He will bring it along for all to see and answer any questions that you have.

I always find it quite amazing how Al manages to put these things together using various bits of electrical PVC conduit.

Bill will supply the tea, coffee and biscuits.

There will also be a bring and buy table. Bring along anything that you want to dispose of (NO *wives* ... I *knew* somebody would ask!)

Wrinkly Ravers


We thought we would have a smaller group at the January gettogether than in the past because a number of members said they would not be available. However, Ken ZS2BWB and Judie brought Bob K4CY and his XYL Lyn Furser to the do, and there were several others who we had not expected. Altogether there were 13 members at the Steak Bar, including Allan and Vicky Ansell and one of our smoothies, Barry ZR2DX.

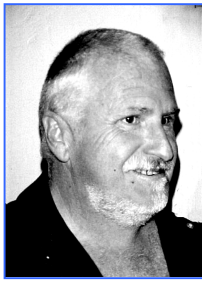
At the February function we had another 13 members, including **Bill and Joan Browne ZS2BY**. Contrary to the usual fashion, we all sat around after lunch chatting about various items before finally pulling the big switch to go home.

For our **March** get-together, which will be on **Thursday the 4th**, let's see you all at Barney's Steak Bar, Circular Drive, Lorraine.

THANKS to ZS1I for the CD containing the Gizmo Gazette, Volume 1, Issue 1 for the period September to December 2003. There are a lot of good items, which we will draw on.

RAE DATES: Closing date 15 April for the 20 May RAE; and closing date 14 October for the 18 November RAE.

CORRECTION: In *An Oscillator to Check Crystals* in the December issue, R2 (emitter of Tr1) should be 1k Ω . 



from *The* *Chairman*

With January just a fleeting memory, we can truly say that 2004 is here with us for real.

The PEARS VHF/UHF contest has come and gone, and by all accounts, those who participated had enormous fun. After discussion with a few of the really enthusiastic operators, it seems apparent that there is need for more frequent, formal on-the-air activities.

These events give members the opportunity to test new equipment, make adjustment to not-so-new equipment, and compare the results they are getting with fellow hams.

AI, ZS2U is currently investigating several of the ideas that came up during a Monday evening call-in.

The ideas that had best initial support are:

- **AI's Quirky Contest** (my choice of name): This is intended to be a 2m FM event where participants will have as close to a level-playing-field as possible. Power level and antenna gain dividers will give those stations with basic stations an even chance of winning.

- **VHF QSO Party:** Apparently these were held several years back, and as AI recalls, they were popular. Operation on simplex and repeater will be allowed – giving those far-away stations who's only VHF contact with the "outside world" is via the repeater link system the opportunity to compete favourably with their city-slicker cousins.

- **VHF Field Day:** We know all about HF field days, and it is anticipated that the VHF field day will function in much the same way – but obviously the idea is for

your field station to be set up in a VHF-friendly location.

If you have some other ideas that may prove to be of interest to at least some of your fellow radio amateurs, please share them with us. It is our intention to ultimately have one event every month.

As if maintaining our repeater network wasn't enough, Chris ZS2AAW, upon being relieved of his club secretarial duties has taken on the task of organising speakers for club meetings. Chris, a big thank you – and may your mental health improve! Similarly, if you have any ideas for meeting themes, etc. please share them with Chris. Meetings become rather mundane without guest speakers, but don't leave it entirely to the committee. Lend a helping hand.

Congratulations to Cyril Hislop (ex ZR2H) on passing the 12wpm morse code test. I hear he is now proudly sporting the call sign that belonged to his late father, ZS2EJ. We will now have to concoct phonetics to suit that resurrected call Cyril – how about *Electric Jaw*?

Finally, we are expecting an American amateur to be lurking around our shores, and perhaps even to be joining us at the February meeting. Keep an eye open, and an ear listening for Mark Oppenheim KD6KQ.

73,

Rory, ZS2BL

Monitoring

It is very seldom that we in the East Cape are involved with emergency communications, thus our main contribution is to monitor emergency channels.

Our monitoring channels, in order of importance, are repeaters, especially the linked repeater system, 7070 kHz and 3695 kHz SSB and 52,950 MHz FM.

Monitoring does pose problems as, at the one extreme, such channels are kept clear of all communications, other than emergency communications. Because of these rare occurrences, people get tired of monitoring nothing and this is probably the main reason why the NEARNET system has all but collapsed.

At the other extreme, there is so much activity on these channels that people switch off their sets or tune elsewhere. It is virtually impossible to draw hard and fast rules in this respect and it is best to let activity settle to a

natural level.

Correct operating practices go a long way toward the success of such monitoring and usage of the emergency channels.

I have often enough recommended that amateurs participate in contests, work DX or work toward one or other award to improve their operating skills.

If a channel is required and is occupied, a "break" call usually does the trick.

If it is really necessary to speak to someone about his or her operating, do so diplomatically and preferably privately. Refrain from passing scathing remarks as this creates a poor image of amateur radio, tends to destroy the feeling of camaraderie among amateurs and will certainly not endear you to those addressed.

73

AI ZS2U
Director: ECARES

PEARS **AQ** TWO METRE FM CONTEST

This contest takes place from 1500 to 1800 SAST on Saturday, 20 March 2004. All amateurs in the East Cape are eligible for the contest, but stations outside the East Cape are welcome to give points.


There will be two categories: Fixed station and Field station. Both categories will be single operator, but two or more amateurs may operate the same station under their own callsigns.

Scoring

Contestant scores one point per kilometre between his station and the station

contacted.

There will be two divisors, one relating to the power used and the other to the antenna gain. This is in order to give contestants with low power and/or low antenna gain an equal chance against the better equipped stations.

Logs may be submitted to the PEARS address or to AI ZS2U. Logs must contain time, callsign of station contacted, grid locator (6 digit), and signal report; also callsign, location of contestant, power output and antenna gain (or relevant information on antenna). 

REPEATER & PACKET NEWS

from Chris Scarr ZS2AAW

KNYSNA REPEATER

This repeater suffered lightning damage recently, and Trevor ZS2AZR went to investigate. He found all the mains circuit breakers tripped, and damage to some components. The low volts load disconnect module was completely blown, and on bypassing this the repeaters came to life.

However the charger would not deliver current to the batteries, and the voltage was down to 22V. Trevor decided to remove the charger and send it to PE for repairs, arriving here Monday 26th. On investigation there was further damage on the charger control card.

The Charger control card acted as a spark gap on the mains tracks on the PCB. They flashed over and burnt off, and also flashed over to a nearby low voltage rail, thereby taking out most of the IC's too! I have got it going again after replacing all the chips and fixing the missing tracks.

Obviously the site at Knysna does not have proper surge protection in the AC distribution board, so I will fit some in the charger itself. I am hoping to get it all done this week so I can send the charger back to Knysna on Friday 30th. The link to George/CT is out at the moment, of course.

COCKSCOMB

The batteries from the Cockscomb repeater have been checked over by Neels, ZR2ABT, and he pronounced 4 out of the 10 cells (NiCad 25Ah) dead on arrival. Fortunately he had identical ones available from other decommissioned banks at his saltmine, so he has made up a full set of 10 cells and has given them the all-clear for duty for the next ten years on site.

So all that remains is to get the radio equipment set up and soak tested before taking back to site. I am searching for information on a Midland 70-243 handheld to be used as a link radio, for this repeater site, so if you have or know anyone with the right connections, please follow it up.

CHANGES TO THE PACKET SYSTEM

In order to allow proper APRS functionality at Lady's Slipper, some changes need to be made at the site as far as how the BBS connects into the system. The BBS runs FBB software version 7.00i, under DOS, using BPQ software to connect to the various TNC's on the site.

The drawback of the BPQ software is that it cannot do APRS digipeating on the various standard APRS routes like WIDE, RELAY, GATE etc. And it can only digipeat to one specific port, where APRS traffic that comes in on one port (say HF) needs to go out on all other ports in a fan-out fashion (like the VHF and UHF backbone ports).

A good example of the limitation is Bill's weather station messages. Whilst they are nicely digipeated via Slipper, they are not sent on the backbone to Grahamstown and further afield, so only the PE area gets to see them. With a proper setup running, the information would end up in East London and Cradock and on HF too.

This was the reason the Grahamstown digipeater was changed into a PC-based Node, running AGW software to interface to the TNC's, Ui-View to do the APRS digipeating, (which allows total control over which ports the messages go out on) and Digiplex to provide the Node functionality to cross-connect to the

ZS0NTP BBS.

A similar installation is required for Slipper, but the complication of a BBS program that only runs under DOS has delayed things. Ideally, we should use a BBS program that runs under Windows and can work with AGW, then it could all run on the same machine together.

A 32 bit Windows version of this BBS software was attempted by the authors (version 7.00e), but its development was shelved. I loaded this version as an experiment, and it worked well with AGW directly, but there were many bugs, one of which was the refusal to send any sync updates to Winpack users. So this was abandoned. The retention of FBB software for the BBS is a must, to keep locals happy.

So the only alternative was to run the BBS on one machine, and the Node with all the TNC's on another PC. This was set up at my QTH, and the BBS configuration changed to only have one port. The Node was set up with an extra port, and the two PC's cross connected using a null modem cable.

The KISS protocol which is used on the RS232 ports to talk to the TNC's allows this to be done, since it is a simple communications protocol designed for transparent channel access. The serial port rate was bumped up as high as possible, and works reliably at 57 600bps between PC's!

The Windows PC runs the Node and digipeater software, and any connect request to the BBS are routed out to the serial port and across to the BBS machine, which still runs DOS and BPQ, with FBB version 7.00i as at present. A complete setup was run on test in the garage for a week, and performed well.

The only drawback is the change in

access to the BBS, as it is no longer "directly" accessible from 144.625, but rather via the ZS0NTP-2 Node.

However, the APRS functionality is perfect, and the FBB mail header updates can be routed to all ports via the Node. The BBS beacon will inform users how to connect, once it is fitted on the mountain.

Some changes will be required – to connect, one will have to either:

- a) Connect to the Node at ZS0NTP-2, and once connected, issue the command "BBS", which will cross connect you automatically (preferred, as it uses Level 3 digipeating on each individual hop, an improved retry method per hop), or
- b) Connect to ZS0NTP via ZS0NTP-3, which will route you via the Node directly to the BBS (but at level 2, so only end to end retries).

For the FBB unproto lists to work, you will need to modify your Winpack packet.ini file to have the new path for the BBS as ZS0NTP v ZS0NTP-3, so that sync requests arrive at the BBS machine. It will send the updates via WIDE, WIDE, WIDE, so will appear on all ports as per normal.

Note that to use the preferred connect method for auto BBS connects, you will need to edit the scrip file to connect to ZS0NTP-2 first, and then issue the "BBS" command, and then wait for the BBS prompt, which should be set to "ZS0NTP>"

Once installed, this new arrangement will open up further developments such as a separate APRS channel, a possible DX Cluster that ZR2DX would like to set up in PE, and receiving and sending of APRS info (including other weather stations) from other divisions around the country on HF.

So keep your eye on packet... 

KNOW YOUR LEAD-ACID BATTERY

by Ron Clayton, First National Batteries, EL

This is the second part of Ron's article on lead-acid batteries.
The first part appeared in the December issue of QSX.

Lead-acid batteries go through two distinct stages when being charged. The following are the points of interest relating to these stages.

- Stage 1 – this applies up to the gassing voltage of 14.3V. The battery may be charged at very high rates (up to 40A for a 100 Ah battery) although this is inefficient, and charging at about 5% of capacity is more practical. The battery will not get hot unless it is faulty.
- Stage 2 – above 14,5 V on charge, water in the electrolyte is decomposed and liberates oxygen and hydrogen gas at the positive and negative plates respectively. This process creates much heat and therefore batteries are never charged at high rates once they are gassing; this would shorten the life of the battery and cause excessive loss of water.

For radio amateurs, batteries may

be charged in one of two ways.

They may be charged continuously which is called float charging. This requires the battery to be charged at 13.2 to 13.5V.

This method has the disadvantage that the battery will require equalizing charges to prevent the cells getting out of balance.

The battery can be charged when its open-circuit voltage falls to 12,4V. An overnight charge at 3 to 5% of capacity with the voltage limited to 14,5V will be adequate.

The above remarks are applicable only to conventional flooded batteries.

[Ron is not sure whether any further information is required by readers. If you have any queries about lead-acid batteries, please contact your Editor, who will pass them to Ron for an update. In the mean time, many thanks, Ron, for an interesting article.]

FOR \$ALE ★ WANTED ★ SWOP

FOR SALE

* Yaesu FT 707 HF transceiver (needs re-alignment) with YM35 Mic + FP 707 Pwr/Sup + Original Instruction Manual. **NB** – Tx'er and Pwr Supply goes together as one unit – R1000; Yaesu FT 221R [mains operated] All Mode two metre transceiver + Instruction Manual – R600; PYE Westminster Two Metre Rig crystallised for use on packet 144.625 MHz + Workshop Manual – R200; AIWA Desktop Studio Mike, Hi 50k, Low 600 ohm impedance – R55; Three new 811A HF linear tubes – R100 ea; Four used 6146B / 8298A final tubes (may still be of use) – to a good home; — Contact Neil, ZS2MG on Tel 041 360 2527 or Cell 072 149 4164.

SIMPLE TWO METRE BEAM

Al Akers ZS2U

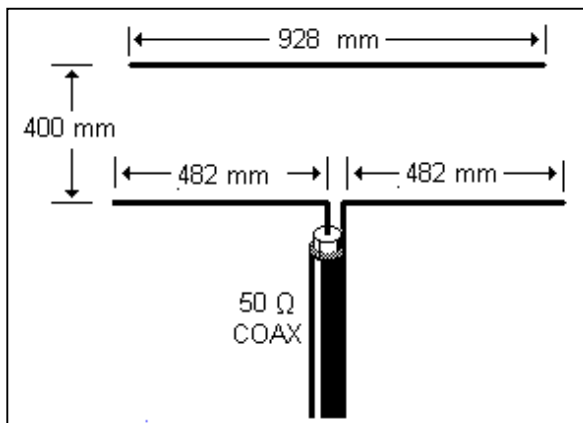
For those who, for whatever reason, do not wish to make an elaborate beam, especially for portable use, this simple beam was developed. The diagram shows all dimensions and, as can be seen, there are no matching arrangements.

The one I built made use of 20mm electrical PVC fittings, i.e. a tee-piece, two couplings, two 160mm lengths of pipe and another short length of pipe which plugs into the tee-piece and is used to fasten the beam on a mast.

The elements are mounted in the two couplings which plug onto the two short lengths of tubing and these, in turn, plug into the tee-piece. Elements are made from 3mm brazing rod.

Measured SWR on this antenna is 1,3:1.

The antenna will be on show at the February meeting, and (hopefully) all questions answered. ☺



SARL RECOMMENDATION ON LICENCES

In a packet bulletin by Yvonne Van Dijk ZR6TBL, Secretary of the SARL, she says: "Our proposal has been accepted and gone through the Legal Department, the Spectrum Department and the Licensing Department. These are departments within ICASA it had to go through first and be cleared. Graham got it through there in record time and it is now being prepared for the ICASA council.

"It will be discussed either this Tuesday [around the end of January - Ed] or the following one. They have promised Graham [Hartlett ZS6GJH, President] this. ICASA then puts it to the DOC and we are hoping that they will move on it and hurry, and it will not take longer than 3 more months.

"That is what we are hoping for and pushing for like crazy. So the bottom line is that Council is doing everything possible to get this passed through the official system and in action for all of the hams.

"On council we do what the majority of the hams want ... we put our feelings aside. So, it does not matter if personally we don't like or agree with something, we are there to

represent and support the majority of hams and that is what we are doing."

I still cannot fathom why the League persists in recommending morse code as a condition for one or other licence, or why they want a number of different licences.

There are extremely few applicants for anything other than the present ZR/ZS licence, and even fewer with ICASA's new licence fees. We surely don't want a licensee to have to upgrade to the next at these exorbitant fees. All we need is a single licence, no morse code but with a negative marking system in the RAE.

Why limit the power used? How long will morse experts remain available? Why insist on digital knowhow?

I believe that ICASA must simply take out the ZR restrictions and allow the full ZS rules to apply to them too. There is no need to change their callsigns – another cost saver! ZRs and ZSs can happily cohabit the bands just as the Ws, Ks, Ns etc do. – Ed. ☺

SIMPLE "CHEAP" VHF CONVERTER

from JOHAN TERBLANCHE ZS1I

This simple converter is easy to build and is an ideal project for prospective hams to listen to radio amateurs on the 2M band and to familiarize themselves with operating procedures before they write the RAE. This is not the only use for the converter. The converter can also convert the signal from polar orbiting satellites (137.300 to 137.850 MHz) to a frequency, which a standard FM radio (87 to 108 MHz) can receive.

The converter is mounted between the antenna and the FM radio.

CONSTRUCTION:

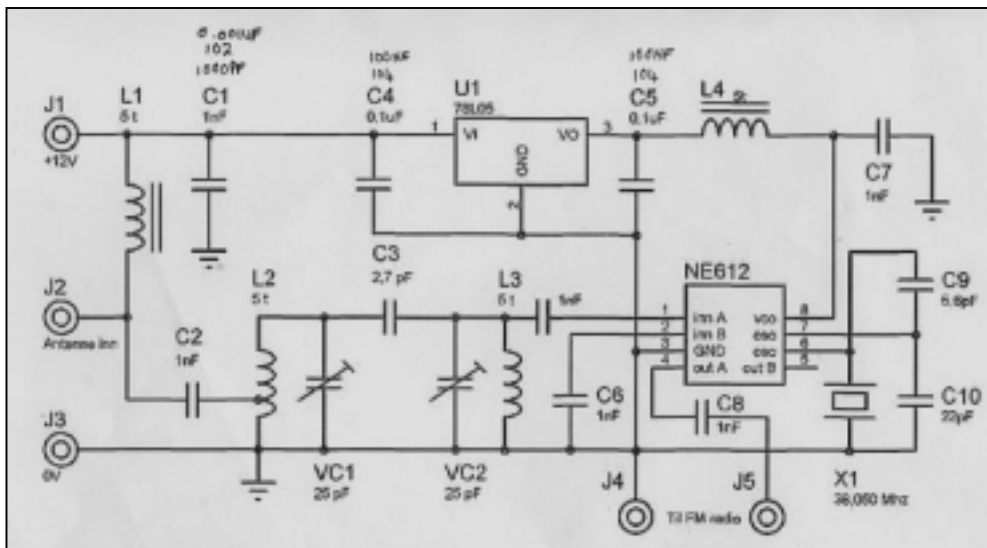
The principle of the converter is simple. It contains a filter at the antenna input, which is tuned to the required frequency (example 145.700 MHz or 137.620MHz). The NE602, NE612, SA602, SA612 IC mixes the crystal oscillator frequency with the antenna frequency.

The output from the mixer is connected to the FM radio (car radio used) antenna input (87 to 108 MHz). The mixer will subtract the crystal oscillator frequency from the antenna frequency and the resultant frequency is fed into the FM radio antenna input.

Examples-

- 1: 145.700 MHz (antenna freq.) –
54.854 MHz (Crystal freq.) =
90.846 MHz (Output freq.)
- 2: 137.620 MHz (antenna freq.) –
40.320 MHz (Crystal freq.) =
96.300 MHz (Output freq.)

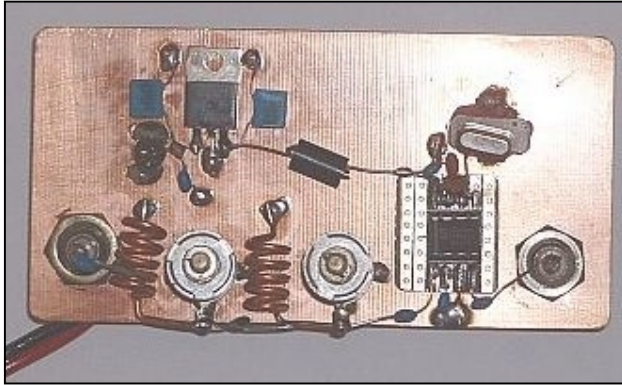
The crystal frequency is not critical, but the output frequency must be inside the range of the FM radio (87 to 108 MHz). It is important that the output frequency is not the same as the frequency of commercial stations as these stations will disturb the signal from the converter.



The inductors L2 and L3 are made of copper wire (1 mm in diameter), the inside diameter of the inductor is 5mm and is 5 turns. The inductors L1 and L4 are not critical and are made of insulated copper wire (about 0.5 mm in diameter). The inductors are constructed out of 5 turns whirled around a little ferrite core.

L1 is not needed if you don't have a pre-amp at the antenna. This inductor only feeds power up to the pre-amp through the antenna cable. **Note:** All the conductor leads in this circuit must be as short as possible (not like the prototype I built!!).

The converter must be built into a



metal enclosure, to ensure good screening from possible interference.

I constructed a proto-type converter (photo) and used an old car radio as a receiver, because of the antenna input connector. Use good connectors, which will prevent commercial signal "pick-up" from entering the FM receiver.

Remember to fine-tune the filter capacitors (VC 1 and VC 2) when replacing the crystal. This will result in receiving a good clean signal and minimizing the strength of commercial FM stations.

FINALLY:

This is a simple and cheap VHF converter; so don't expect a good "DSP" audio signal from a cheap FM radio. I experimented with a wide variety of crystals and different FM radios until I was satisfied with the end result. Once again, experimentation is the name of the "game".

I am sure that many improvements can be made to this converter, but I leave this in your capable hands. 📧

DOG-GONE!

ZS2N, Nico, sent us this photo of the doggie of Johan ZS2Z, hamming it up.

"When I get big", the puppie is reported as having said, "I want to be famous like my uncle in that His Master's Voice ad." 📧



VHF NEWS

from Barry Murrell ZR2DX

PEARS CONTEST

The weekend 23-25 January 2004 saw the holding of the annual PEARS VHF/UHF Contest, the premier event for VHF enthusiasts in Southern Africa.

Locally there was somewhat less support for the contest than expected, with disappointingly few people making the effort to come up on simplex, even if only to provide the chance of points for the contestants. Notable exceptions were Donald ZS2BW and Terence ZR2VDL, who came up on the Sunday afternoon from a mountain outside Cradock and provided much excitement, not to mention a new grid multiplier!

East London stations were very active, with ZS2CLI, ZS2ZA, ZS2AH, ZR2NB, ZR2REG, ZR2RSA and ZS2ABF being heard. Gerald ZR2GB and Ken ZS2KW operated from a mountaintop outside Stutterheim, and were easily worked on 6m, 2m and 70cm in PE. Sadly, apart from André ZS2AJ in Grahamstown, KF36, the only other grid multiplier worked in PE was KF16, with ZS2AZR and ZR2GJ operating from Spitskop, outside Knysna, on 2m during Saturday. Unfortunately they did not have 6m or 70cm equipment.

To date the only report received from other Divisions was one by Hal ZS6WB, who reports good activity from both Division 4 and Division 6. Hal reports hearing ZS4AAR and ZS4B from near Bethlehem (KG41DS) on SSB with a very good signal into the Johannesburg/Pretoria area.

The 3DA0DX 144 MHz DXpedition to Swaziland met with zero success when heavy rain made it impossible for Rad to reach the mountaintop operating site during the entire weekend. ZS6NK also was off the air due to rotator problems, so scarce KG46 was not active on 50 MHz. However, ZS6WI was active so KG46 made it into at least a few 144 MHz logs.

Digital stations were also very active during the contest, with ZS6WB reporting

working Divisions 1,2,4,5 and 6 during the contest. Also for the first time V5 was worked on 2m FSK441 by a couple of stations, in the form of Kosie V51E in Outjo. The longest distance 2m contact reported was between V51E and ZS1NAZ in Cape Town, a distance of 1551km. Six metres digital was also busy, with around 15 stations active.

Locally conditions were very poor for digital operations, but the club station ZS2PE did make 7 digital QSOs, the first time this callsign has been heard on these modes. On 2m contacts were made with ZS6DDG in Randburg and ZS6WB in Pretoria. On 6m the stations worked were ZS6WB twice, ZS4SS, ZS6AVP and ZS1NAZ.

A sked during Sunday morning between ZR2DX and Dave ZS5DJ in Margate on JT65B mode proved again the effectiveness of this mode: despite no audible signals the contact was made very easily indeed on 2m, over a distance of 565km.

All in all the contest proved to be a success, and was thoroughly enjoyed by all who took part. The BIG disappointment was the apathy showed by a large percentage of the membership, who made no effort to even switch on and give a call on the simplex frequencies. A big thanks to those who DID make the effort.

As a sequel to the contest, a discussion took place on Monday night regarding future VHF activities. Several ideas were considered, and these will receive further attention from the committee at the next meeting. Provisionally it was felt that some local mini-contests should be organised during the year to help to stimulate interest in simplex VHF operation. These may include a VHF Field Day, handicap contests and QSO Parties.

V51E LOOKING FOR SKEDS

Kosie V51E from Outjo, Northern Namibia (JG89BW) is looking for 144MHz FSK441 skeds with South African stations.

An initial sked was run with ZR2DX without success, and more skeds are planned over the next few weeks. Kosie has already worked several ZS stations, including ZS1NAZ, ZS5LEE, ZS6DDG/p, ZS6DDG and ZS6WB. Kosie can be contacted via email at kosie@iway.na .

NEW VERSION OF WSJT RELEASED

On December 31 Joe Taylor K1JT

released a new Beta version of his WSJT software, version 4.3.4. This version now has a couple of new modes included. The JT65 mode has been expanded to three modes, JT65A, JT65B and JT65C. More info and a download link can be found on the PEARS website at <http://www.qsl.net/zs2pe> under the VHF section. 📧

HINTS for RADIO AMATEURS

from JOHAN TERBLANCHE ZS1I

CABLE ID'S

Time to start saving those little square plastic closures found on plastic-wrap bread bags these days.... They make nice cable identification tags. A drop of thinners will remove any printed matter on the tags, and a sharp, black permanent marker will allow you to write your own information in its place.

They fit nicely on most sizes of cabling found around the average ham shack, but the hole can also be enlarged a bit with a hobby knife if needed. If the tag refuses to stay on a particular cable, try putting a small piece of good quality transparent tape across its bottom "split-edge".

Now to the marking of the tag. Instead of trying to put all of the information needed on the tag itself, use a "cable schedule". A "cable schedule" is simply a form that shows a cable's number (#1) the type (RG58 U), the source (FT101ZD), its destination and its purpose.

A cable schedule allows you to simply put just a cable number on each end of a cable, rather than trying to describe what the cable's function is on the small tag... that's all done on the schedule form sheet in pencil instead.

It is very logical and flexible once you have become used to it, but you do have to conscientiously keep it up to date if it is to be of any value.

CLEANING EQUIPMENT

Warning: First test the under-mentioned cleaning agent on an out-of-the-way spot to make sure that it is compatible with the paint and plastic used on ham equipment.... you don't want to damage or "clean away" important information!

You can often make those old and attractive "Flea-market" specials come back to appearing close to new, by simply mixing some hydrogen peroxide and water as a cleaning agent.

Hydrogen peroxide is very inexpensive, and can be obtained from your local chemist or hardware store, but it does a nice job of cleaning grit, grime and tobacco smoke stains from a piece of equipment. It also kills bacteria and breaks-up organic matter with its bubbling or cavitation action.

The exact proportions can be arrived at experimentally, but a 50-50 blend is a good place to start, since the typical consumer-available hydrogen peroxide is usually only about 3% strength.

Keep a bottle of hydrogen peroxide on your workbench for applying to small cuts and scrapes to your hands, because of its anti-bacterial properties.

Give it a try and see how it works for you.

By the way, it is also a bleaching agent, so avoid getting any on your clothing! 📧

SATELLITE NEWS

from Barry Murrell ZR2DX

AO-40 IN TROUBLE

AO-40 is in a critical condition. During last Sunday afternoon several stations were complaining of unusually deep QSB and poor signals. The transponder then shut down unexpectedly at MA132, leaving operators very confused. The main beacon was however still strong at this stage.

Peter Guelzow DB2OS of the AO-40 Command team reported as follows: "Last night (Orbit #1488, 2004-01-27, 00:57, UTC MA 42) the battery voltage suddenly dropped from 26V to 14V. We currently believe that, in some kind of domino effect, more battery cells died shortened.

There is also a report that the Heat Pipes 4+X+Y temperature suddenly rose from 27°C to 92°C, when a few moments later the voltage went down. This report is not yet confirmed. Several stations reported that, around this time, the S-Band signal dropped rapidly. This would be consistent with the low bus voltage, preventing the S-TX from working properly.

At the moment we assume that the IHU is still working. Command stations are trying to send blind commands to the spacecraft in an attempt to switch over to the auxiliary battery. If that does not help, then the IHU will be reset and loaded with some software to switch the relays."

On 27 January Stacy Mills W4SM posted the following information from the command team: "We had an extreme low voltage event on the last orbit. This shut off the S2 Tx, and probably crashed the IHU-1. At the moment the main and aux. batteries have been tied together and should be charging. We will wait until the next orbit to see if the voltage on the batteries comes up to speed and we can restart the IHU-1 and reload software."

Initial attempts to revive the satellite proved unsuccessful. It has so far been impossible to switch the battery over to the auxiliary mode. On 29 January W4SM reported: "Our hypothesis remains that we have a battery failure clamping the voltage

low. We're looking at the spacecraft physical and electrical layout and even the "flaky" heatpipe reading to see if we can come up with a more detailed failure point explanation.

If our theory is correct, the remaining cells of the main battery are taking quite a beating as the BCR's try unsuccessfully to bring them up to the set point voltage of about 28 volts. We expect that more than 6 amps are flowing through the remaining cells in the main battery and this current will increase by about 30% as the solar angles improve.

We only need for one of these cells to lose enough electrolyte to "open" and we could be back in business. I'll repeat my comment from before that time is an unknown here and days or weeks without result do not mean ultimate failure."

At the time of going to print, no success had been achieved. The so-called "mystery effect" is aiding the efforts of the command team, bringing AO-40 into a better sun angle which may assist in auxiliary battery charging. At this stage all we can do is sit and wait, and wish the Command Team good luck in recovering the bird.

Other satellite news

The RS15 beacon has been heard, and KD6PAG has reported hearing a CW QSO taking place. Tony AA2E confirmed working RS15 on CW and reports: "When RS15 cooperates, you can carry on a CW QSO if you can put-up with the QSB. I have been successful with SSB, but it's certainly more difficult than using CW."

Bob Bruninga WB4APR reports that in the next few months there will be 2 satellites in orbit featuring PSK-31 Linear uplinks with FM downlink. Both Echo (due up in March/April) and PCSAT2 (due to go up on the next shuttle trip) will incorporate this mode. It will allow as many as 20 or more simultaneous users to uplink PSK-31 on 10m SSB and to hear everyone on the downlink on 2m FM (PCSAT) and 70cm (ECHO). ☺

MINUTES OF THE MONTHLY MEETING OF THE PORT ELIZABETH AMATEUR RADIO SOCIETY HELD AT THE St HUGH'S CHURCH HALL, NEWTON PARK, PORT ELIZABETH ON 15 JANUARY 2004

Welcome:

Rory welcomed everyone who had made the effort to attend the meeting.

Present and Apologies :

As noted in the attendance register.

Acceptance of Previous Meetings Minutes :

Proposed : ZS2HB Seconded ZS2U.

Matters Arising:

Nil

Correspondence:

In: 16 Licences, Various Club Newsletters

Out: None

Finance:

The Treasurer reported on the Society's financial position, which was accepted by the meeting.

Social: Nil

Special Events:

Kids Day – scheduled for 14 February

It was agreed that the weekly Monday evening discussion on 19 January be used to put forward ideas for promotion of Ham Radio.

Repeaters:

ZS2AAW reported on the repeaters: Uitenhage repeater dead. Ladies Slipper power problem had been fixed by André ZS2BK and Viv ZS2VM – thanks go to these members. Cockscomb repeater to be repaired. Kareedouw repeater to be refitted. PC on Ladies' Slipper to be replaced with battery-driven model.

Thanks to Bill ZS2ABZ for the APRS Weather Station. Discussions to take place re linking of additional Weather Stations.

General:

Chris ZS2AAW reported that the NSRI had approached him with a view to obtaining voluntary assistance from PEARS for maintenance of their communications systems. They are in need of basic maintenance and support. Anyone interested in assisting is requested to contact ZS2AAW.

Website: no updates have been done since December due to computer hard drive failure on webmaster's PC. Updates to begin again in January, and members are requested to send info for inclusion on website to ZR2DX.

Rory commented on the SARL website, and in particular the pictures linked to the callbook lookup.

Barry ZR2DX mentioned the downloadable

Radio ZS issues : for those without internet access Barry has these available, and can burn them to CD. Anyone requiring the electronic versions of Radio ZS can contact Barry and provide a blank CD.

Monday evening Get-Together: A team of volunteers needs to be established to set up a rota basis for recording the Sunday bulletin and replaying on Monday evening.

Next RAE: Al ZS2U indicated interest in writing the RAE has been shown by members of the SAR association, but high costs are putting people off. Al is looking for assistance in giving classes, and a suitable venue for classes was discussed. Mention was made of the renovation of the Civil Defence building in Westview Drive, which now has a security fence. Comment was made that it may be worth investigating the possible return to the venue for monthly meetings too.

Subsidy of RAE: A discussion then ensued regarding subsidising candidates for the RAE from club funds. An option was put forward whereby the Chairman's discretion re subsidy can be brought into effect. Barry ZS2H suggested that at the conclusion of the RAE if a candidate had been successful he/she could be eligible for subsidy. Al ZS2U suggested that the membership give some thought to the matter and discuss it during the Monday night discussion.

Barry ZS2H made mention of a Technician-class American licensee operating on HF from the Eastern Cape, and informed that this operation is illegal.

Rory ZS2BL mentioned promoting of Amateur Radio in the local media, and requested any topical items to be forwarded. He referred to Wayne Green's editorials and emphasised the value of marketing. Barry ZS2H stressed the value of pictures, and that TV coverage would be the best form of marketing. Rory also mentioned the feedback achieved from small articles in the free newspapers last year.

VHF/UHF Contest: Al ZS2U outlined the changes in the rules for this year's contest. Al will be operating a home station this year. ZS2PE will be on the air, operated by Barry ZR2DX.

The business of the meeting was concluded at 21h50, and tea and refreshments were enjoyed whilst Bill ZS2ABZ ran a sale of items from Dave Emmett ZS2RH. ☺

Pearstalk



(Some of these items are from SARL bulletins and ZS4BS Dennis Green's HF Newsletter)

'IOTA 2004' ANNIVERSARY PROGRAMME

A reminder to IOTA enthusiasts, and would-be enthusiasts, that 'IOTA 2004', the Islands on the Air 40th Anniversary Awards Programme, started on the 1st of January.

IOTA 2004 runs from the 1st of January until the 31st of December and has the same format and rules as the very successful IOTA Millennium Programme in the year 2000. Entrants make contact with as many different IOTA island groups as possible within the calendar year, using any amateur band, HF or VHF, or any combination of band and mode.

A set of files for downloading is now available on the website of CDXC (Chiltern DX Club) - the UK DX Foundation, where the full rules and a list of Frequently Asked Questions also appear.

FIRST ARISS CONTACT FROM SPACE

While students sometimes consider geography a boring subject on Earth, International Space Station Expedition 8 commander Mike Foale, KB5UAC, told some Ohio youngsters January 2 that it's anything but dull from his perspective in space.

Foale spoke via Amateur Radio with a group of fourth through ninth graders at Gilmour Academy in Gates Mills. Arranged via the Amateur Radio on the International Space Station (ARISS)

program, the contact between Gilmour Academy club station ND8GA and NA1SS on the ISS marked the first school group QSO of the new year.

"If I look at the Earth, I find the geography incredibly interesting," Foale enthused, "looking at how the cities are laid out, seeing the roads and the houses, or often, if it's desert--there's an awful lot of desert on the earth--peeking at the different rocks."

Foale said he studied a lot of geology as an astronaut, but he's especially fascinated with the people living below, and he always keeps a computer-based encyclopedia handy when he's viewing Earth from space.

NASA MARS LANDERS

Many people will have been following the progress of the various Mars expeditions. The first of two NASA Mars Exploration Rovers, named Spirit, landed as planned in Gusev Crater earlier this month, exactly on target. This target was chosen as it is thought to have once contained water and may provide evidence of any past life on Mars. Communication with the lander is provided both directly, and via the orbiting satellites.

The rovers can only transmit direct-to-Earth for at most three hours a day due to power and thermal limitations, even though Earth may be in view much longer. The data rate direct-to-Earth varies from about 12 000 bits per second

to 3 500 bits per second. Already we have received stunning pictures of the landing site and more will become available as the expedition progresses.

Two web sites which provide pictures and updates are: <http://spaceflightnow.com> and the Astronomy Picture of the Day site at <http://antwrp.gsfc.nasa.gov/apod/astropix.html>. Regular updates of major events are also available on <http://www.cnn.com>.

SILENT KEY

We are sorry to announce the passing away of Gert Schlorf, ZS1ABM, on Tuesday 13 January. Gert had a heart attack and died in hospital. He is survived by his wife Toekie and six children.

Gert was well known for the ZS0STB packet BBS which he operated in the Western Cape.

In the early days of the SUNSAT project, Gert erected the first ground station for SUNSAT at Stellenbosch University.

MOST WANTED LIST

DX Magazine's Most Wanted Survey, the results are in!! The DX Magazine has announced the results of its annual "Most Wanted Survey" which was taken between late September and ended during mid-October of 2003. The total results are published in the January/February 2004 issue of the DX Magazine.

The magazine breaks down the results by worldwide, Europe only, worldwide (No Europe or USA), overall USA, USA/NA Eastern Time Zone, USA/NA Central Time Zone, USA/NA Mountain Time Zone and US/NA Pacific Time Zone.

Here are the top 10 Most Wanted:

- 1) Scarborough Reef (BS7)
- 2) Andaman & Nicobar Islands (VU4)

- 3) North Korea (P5)
- 4) Lakshadweep Islands (VU7)
- 5) Peter I Island (3Y)
- 6) Yemen (7O)
- 7) Juan de Nova & Europa (FR/J & FR/E)
- 8) Navassa Island (KP1)
- 9) Desecheo Island (KP5)
- 10) Aves Island (YV0)

Carl Smith, Editor of QRZ DX and The DX Magazine conducted the survey. For more information on these publications, please visit www.dxpub.com

GREETINGS FROM KD6

I'm KD6KQ from California, and I'll be in RSA for about a month - Mid Feb thru mid March. Hoping to finally bring a 2M HT with me and get on some of the local repeaters.

I've been on the PEARS web page, and I'm hoping to attend your next meeting in Newton Park (I'll be in the Walmer/Charlo area – not too far away). However, the weekend following the meeting, I have to be in J-bay for a wedding, so I'm not sure at this time I can commit to ACTUALLY being there!

I've been to RSA about 5-6 times in the last 10 years, and really enjoy the country. I managed to get on HF once from PE and that's about it.

If you know of any activities that are going on (especially after Feb 23 – post-wedding), let me know. I work in radio comm full-time (I work for the biggest county in the USA maintaining radio and microwave equipment) and have worked in the past in Afghanistan, Pakistan, Kosovo, Sudan, Sierra Leone, etc.
Best 73's – Mark KD6KQ

RAE QUESTION POOL

Council has adopted the recommendations of the recent review of the RAE syllabus and examination by the

Education Councillor Andrew Roos, ZS1AN. One of these recommendations is that the use of a publicly available question bank for the RAE be phased out.

This will start with the next RAE in May 2004 and it is anticipated that at least 20% of the questions in the May examination will not be taken from the question bank and will not have appeared in previous examinations. RAE Course instructors are requested to ensure that they teach the entire syllabus and do not rely on their pupils memorizing the answers to the questions found in the online question bank.

SAARDT ANNOUNCES A DESIGN AND CONSTRUCTION PROJECT COMPETITION

The South African Amateur Radio Development Trust has launched a design and construction project for a mixer/controller unit.

The project is in response to the SARL request for such a unit to facilitate various programmes such as the Chairman's net and other on the air discussion and education projects. The unit will typically connect the inputs and outputs of several transceivers, a microphone, tape and other audio devices.

The competition will be run in two parts. The first part is the design of the unit and the second part the construction of a working model. The winner of the design competition will receive a cheque of R2000.

A maximum of R3000 will be made available to the winner to construct a working unit, which will be used by the SARL President or any other person running the President's net.

The entries must be fully documented. After evaluation of the working model the

design will be made available to clubs and other groups or individuals who have a need for such a unit.

To participate you need to register with the SA Amateur Radio Development Trust by sending your contact details by email to saardt@intekom.co.za or by fax to 012 991 5651. You will receive a specification document setting the requirements. The closing date for the design is 29 February 2004.

WELKOM REPEATER

Johan Roos ZS4KB tells us that the Welkom Radio Club repeater, callsign ZS4ZK, operates from the old Provincial Hospital building in Welkom, at 26 Deg 44 Min 26 Sec East and 27 Deg 58 Min 00 Sec South.

It's frequency pair is 145.150 MHz in and 145.750 MHz out. It is linked to the 145.700 MHz repeater in Bloemfontein, using a UHF link on 434.675/433.075 MHz.

DELAYS IN WEBSITE UPDATES

Updates to the PEARS website over the New Year were not uploaded due to a computer crash experienced by Barry ZR2DX. The hard drive had to be reloaded, and regular updates are under way again. Apologies for the lack of updates over the festive season.

WEBSITE FEEDBACK REQUESTED

Members are urged to visit the PEARS website at <http://www.qsl.net/zs2pe> and forward any comments and suggestions to the webmaster, Barry ZR2DX, at zr2dx@mweb.co.za.

This website is intended for the members, and anyone with information or content for inclusion on the website is requested to pass this information along to Barry. ©

Condolences: Our condolences go out to Trevor Scarr ZS2AE, Bryan Marshall ZS1NQ, and Rudy van Zyl ZR6VZ (formerly ZR2F), as well as their families, on the loss of their sister in law, sister and father respectively recently.

To those celebrating special days (22.2 to 20.3) we say

Have a Happy Day... 

... on your birthdays

February

- 26 Yvonne Rhodes, XYL of ZS2VU
- 26 Charmaine van Rooyen, XYL of ZR2VAN
- 26 Henry Danielson, ZR2HPD
- 28 Karel Stone, ZR2KKK
- 29 Wolf Gerstle ZS2WG

March

- 3 Nita Davis, XYL of ZS1J
- 10 Neil Bousfield, ZR2DR
- 13 Magret Ras, XYL of ZR2MR
- 14 Ali Mathieson, XYL of ZS1EM
- 15 Susanna Bosch, XYL of ZS2FM
- 16 Anne Butcher, XYL of ZR2GIB
- 21 Andrew Gray ZS2G

... on your anniversaries

February

- 24 Barbara and Bill Hickson ZR2WJA
- 28 Wanda and Jan van Ree, ZS2JW



March

- 3 Anne and Graham Butcher, ZR2GIB

- 3 Teresa and Tim Joubert ZR2TW
- 4 Pamela and Jack Koen, ZR1JAC
- 15 Cheryl and Arno du Preez ZS2ABT
- 21 Maureen and Neil Fulton, ZS2MG
- 21 Anne and Norman Dowler ZS2XF

... on your new callsign Cyril Hislop, ex ZR2H, who now has his late father's callsign ZS2EJ.



New Member: We welcome George Pearson to our midst. He joined at the last meeting. We hope you will be at home with us, George.

Heart Attack: We reported that Bill Browne, ZS2BY, had a serious heart attack early in December and we never thought he would be up and about so quickly. Yet, just a few days after he was out of ICU and into a general ward, Beavan telephoned Joan to ask how he was getting on, and lo and behold! Bill answered the telephone!

Imagine our surprise on 5 February to see both Bill and Joan arriving at the Wrinkley Rave! Although he is not fully recovered yet, he sure seems to be doing well. 📺

Your Society's Committee

Chairman, Awards.....	Rory Norton ZS2BL	585-9330	rory@commco.co.za
Vice Chair,	Chris Scarr ZS2AAW	368-1344	cvscarr@intekom.co.za
Secretary, Internet Website	Barry Murrell ZR2DX	083 717 9210	zr2dx@mnet.co.za
Treasurer; Assets Control	Clive Fife ZS2RT	367-3203	cfife@absamail.co.za
Repeaters, packet,.....	Chris Scarr ZS2AAW	368-1344	cvscarr@intekom.co.za
Social, Refreshments,	Bill Hodges ZS2ABZ	581-2580	whodges@absamail.co.za
Special Events	Ewalt Bouwer ZS2EHB	933-3482	ewalt.b@freemail.absa.co.za
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QSX Editor (ex com).....	Garth Laaks ZS2HB	368-1101	glaaks@iafrica.com
QSX distribution (ex com)....	Trevor Scarr ZS2AE	367-1746	t&j.scarr@intekom.co.za
Technical Classes (ex com) ...	Al Akers ZS2U	360-2983	makers@firestone.co.za

PEARS' VHF/UHF & Other Services

REPEATERS

Town VHF	# 145,050/650	
Town UHF	# 431,050/438,650	Knysna
Cockscomb	145,000/600	Lady's Slipper.....
Colesberg	* 431,075/438,675	Noupoort.....
Cradock	* 145,050/650	Uitenhage.....
Grahamstown	* 145,150/750	

* These form the PEARS long-range 2-metre repeater system, also linked to which are East London 145,775 MHz, George 145,700, Danabaai 145,600, Stilbaai 145,750, Butterworth 145,725, King Williams Town 145,625 and Umtata (438,725 duplex). It is further extendable to Cape Town via the WCRWG system. # These can also be linked as required.

OTHER SERVICES

Packet Bulletin Board (ZSØNTP)	144,625
Packet Rose Switch ZSØGHT-3,046101 (144,675 in/out) or 046102 (UHF out to BBS).....	144,675
2m Beacon (ZS2VHF CW ID, FSK) (horizontally polarized, 160W ERP)	144,415
6m Beacon (ZS2SIX CW ID) (horizontally polarized, 25W ERP)	50,005
6m Simplex Link with Lady's Slipper 2m Repeater (vertically polarized)	51,400

Sunday Bulletins

PEARS bulletins are transmitted on Sundays immediately after the SARL English transmission, i.e. at about 08:45, on 7098 kHz as well as the 2 metre linked network that provides coverage from East London to George as well as Cradock and environs. PEARS' 7098 or 3640 kHz transceive facilities are also remotely linked as needed. In addition, the SARL's 40m operations on 7082 or 7066 kHz or Hamnet's 7070 kHz can be remotely patched to the 2m network, in receive-only mode or with full transceive capability for interactive events.

Date	'repare and Read on 2m Repeater Link
15 Feb	ZS2EHB
22	ZS2AAW
29	ZS2RT
7 Mar	ZR2AG
14	ZS2ABZ
21	ZR2DX

DIARY DATES
<u>FEBRUARY</u>
14 SARL Kids Day
14-15 SARL HF Field Day
19 PEARS MONTHLY MEETING
29 SARL President's Net
<u>MARCH</u>
4 Wrinkly Rave

* We like being your Society *