

Zululand Amateur Radio Club News

The newsletter for the discerning Ham

July 2015

ZARC Committee

Chairman: Mike Kramer ZS5MB

Vice Chairman: Warren Snyders ZS5WOZ

Treasurer: Willie Axford ZS5WI

Secretary: Dawn Snyders ZS5ME

Ham Net: Mike Kramer ZS5MB

Editor: Jo Snyders ZS5PO

Member: Andrew Jansen ZS5AND

Member: Gerald Scrooby ZS5GS

Webmaster: Chantel Pelsler

Club Repeaters

Ntumeni 145.675 MHz

Empangeni 145.700

Club Packet Digipeater/Mail-drop & APRS Digipeater

Ntumeni 144.625 (ZS5ZLB Mail, ZS5ZLB-2 Digipeat, ZS5ZLB-7 KA-Node) PBBS: ZS5AND

Club Nets

ZS5PO & ZS6AE Have A Sched On Thursdays Between 17:30 and 18:45
On 7.175 Or 3.645 Depending on propagation
ALL are more than welcome to join us for a "rag chew"

SARL News

08h30 - Sundays - 145.650, 7.066 MHz

NEXT ZARC MEETING

DATE: 27th Sept OR 18th Oct 2015 (**Sunday**) **Still to be decided**

TIME: Meeting will take place ± 13:30, after the customary Braai at 12:00

QTH: **Still to be decided**

E-Mail: dawnjo@telkomsa.net (Secretary)

Club Web site: <http://zs5zlb.zs5and.co.za/>

Editor, Q.R.L.



Greetings & Salutations fellow members, I trust that this news letter finds you all in good health. The date of the next club meeting is still to be decided, and will take place on either 27th Sept OR 18th Oct 2015 . The venue will be decided once the date is finalised. Whatever date and venue is decided on, the meeting will still take place at ± **13:30**. Please make a note in your day books and diaries. The time for the customary braai will also still be at **12:00**, giving everybody a chance to get there after Sunday morning commitments.

Have you bought insurance to continue enjoying your hobby yet? SARL membership IS that insurance!!!
Is your hobby worth R1.26 per day to you? YES?! Then join the SARL, it's the RIGHT thing to do!!!

The radical opinions, and rantings of the Editor, are not necessarily the opinions of, or supported by, the ZARC Committee, or it's members.

Wots Potting In The ZARC

Birthday Greetings Go To:



July: Dawn ZS5ME, on the 12th. John ZS5J, on the 20th. Rod ZL1RK, on the 31st.

Aug: Anne ZS5FAB, on the 2nd. Melissa, daughter of ZS5WOZ, on the 17th. Andrew ZS5AND, on the 18th. Bridget, daughter of ZS5PO & ZS5ME, on the 20th.

Sept: Ian, partner of Chris ZS6RI on the 17th. Chris ZS6RI on the 17th.

Oct: Willie ZS5WI, on the 2nd. Mike ZS5MB, on the 6th. Kiana, daughter of ZS5J, on the 31st.

Dec: Belinda, SW of ZS5WOZ, on the 17th.

Many happy returns to all of you, and may you be spared for many more years.

(If your birthday wishes do not appear here, it is because you have not informed me of your birth date).

Get Well Soon



Our Treasurer, Willie ZS5WI, Is out of hospital, and well on the way to full recovery.

Andrew, ZS5AND, is once more in hospital with his ongoing leg problem. Andrew, you are in our thoughts and prayers, and we wish you a speedy recovery.

Club Happenings

On **Sunday July 19th**. The ZARC AGM took place at Tattenham Resort. It was attended by six club members and one visitor, and a handful of proxies. As the charcoal was a bit late in arriving, and no more members were expected to arrive, it was decided to go ahead with the meeting, while we were waiting for the braai fire to sort itself out.

The new ZARC committee will consist of: **Chairman:** Mike Kramer ZS5MB, who will also fill the position of Hamnet representative, **Vice Chairman:** Warren Snyders ZS5WOZ. **Treasurer:** Willie Axford ZS5WI.

Secretary: Dawn Snyders ZS5ME. **Editor:** Jo Snyders ZS5PO. **Members:** Andrew Jansen ZS5AND & Gerald Scrooby ZS5GS.

Congratulations to all those who were elected, and we wish them strength in the year ahead. We would also like to thank all last years committee for all their hard work during the past year.

In the left photo, Mike ZS5MB, Warren ZS5WOZ, Dawn ZS5ME, Gerald ZS5GS, Willie ZS5WI.

In the right photo, Dawn ZS5ME, Willie ZS5WI, Warren ZS5WOZ, Gerald ZS5GS Mike ZS5MB.





In the two photos on either side, can be seen what took place immediately after the meeting was declared closed. **It was decided to leave the club membership fee at R75.00 for SARL members**

18th ANNUAL INTERNATIONAL LIGHTHOUSE / LIGHTSHIP WEEKEND

00:01 UTC 15th AUGUST 2015 TO 24:00 UTC 16th AUGUST 2015



It is nearly that time of year again. The month after our AGM is Lighthouses month. ZARC will be taking part at Tugela Bluff Light. Come on members, let us know if you will be joining us. Bookings have to be made at Tugela. We can get the same 6 bed cabin

we usually use, IF WE HURRY. I don't know if it is just my imagination, or is it really becoming more difficult every year to get members to take part in field events, so that I can get material for the news letters. It is starting to feel as if I am just buying at the moon!!

Early Warning

The second leg of the 2015 South African Radio League National Field Day, takes place over the weekend of **12 and 13 September 2015**.

No, NOT November – National Field Days are now February and September!

OK, as it seems that nobody is going to be available this September, I have decided to go it alone. I will be house sitting/ "baby" sitting, for ZS5WOZ that week end, so I will set up a station in his front yard. I will see if I can coerce ZS5ME to give me a hand with the antennas, and maybe even stay long enough to work a few stations.

Club Birthday & Web Site

Next year on **Friday 15th February 2016**, our club turns 21 years old. We are thinking of adding a Photo Album page on our web site, depicting a selection of photographs taken during various club functions eg. meetings, field stations, and other interesting occasions that have taken place in those 21 years.

If any one has any photos that were taken by them at any of the club functions, and you think they would look good on the site, please send them along with names and call signs of the people in the photographs, and also the occasion and the date taken.

At the AGM, a discussion was had regarding setting up a field station on Sunday 17th Feb 2016, at the Fort Museum in Eshowe, and combine this with the club's "Christmas Lunch". More about this later.

ZS5 Sprint

Before the **ZS5 Sprint** took place on Sunday 5th July, Gerald ZS5GS asked if he could take part in the event, on behalf of the club, using the ZS5ZLB call sign. I told him that he could go ahead, as there was nobody else available, nor anybody who had offered to do it. WELL, this was Gerald's first attempt at working the club station, AND taking part, all on his own, during a competition!! Gerald made a total of **41** contacts during the **1 hour** competition, which netted him **68** points, and **10th** position out of **25** log entries that were sent in.

Congrats Gerald, as that was not a shabby result at all, for a first time attempt. 😊



Packet

On the packet Mail-Drop scene. The TNC is beaconing out. The coax on this set-up still has to be renewed, and the antenna moved to the east side of the tower

APRS

Your path to any stations in RSA, (or anywhere in the world via the I-Gate on 144.625) will be **ZS5ZLB-2, RELAY4-4**. The I-Gate should be available between the hours of about **09:00** and **22:00**, WHEN I AM AT HOME. People in the Richards Bay/Empangeni area can get into the PMB I-Gate on 144.800.

For those of you Zululanders who have Internet, go and look on the www.aprs.fi web site, and type your call sign into the slot at the top of the column on the right, and press search, and see if your station appears on the map.

Repeaters

145.675: This repeater was replaced after the Xmas meeting & lunch, and the old Storno is working well.

145.700: This repeater is now a DEAD puppy, and needs LOTS of TLC. **STILL waiting for ESKOM to open up for us to get into this site.**

“SWAP SHOP”



If you have any items you want to get rid of, or if you are looking for something, Please let the Editor know and he will advertise it in the swap column for you.

1 X **Neutec SM-1645** 16 channel 2Mtr VHF radio for sale.
Service, user and reprogramming instruction manuals available.

Reason for selling: Surplus to requirements

Please contact Gerald, ZS5GS on: **071-143 5433**



NB This picture of the radio was found on the internet, and is NOT a picture taken of the actual radio that is for sale

Please contact me if you are looking for a **Hy-Gain TH-MK4** beam antenna, The price being asked is **R4500**, and this one is in very good condition. Brand new they go for around **R9500**.

Home Brewers Hoekie



Exploring Rechargeable Batteries

by Peter Parker VK3YE

(first appeared in Amateur Radio, December 1999)

Rechargeable batteries: They're used everywhere, and there's many different brands and types. Almost every amateur has their own opinions on the merits of different types and the best ways to look after them. Here we examine the main types available and their suitability for various equipment amateurs use.

PART 1 OF 2

How rechargeable batteries work

Batteries convert stored chemical energy into electrical energy. This is achieved by causing electrons to flow whenever there is a conductive path between the cell's electrodes.

Electrons flow as a result of a chemical reaction between the cell's two electrodes that are separated by an electrolyte. The cell becomes exhausted when the active materials inside the cell are depleted and the chemical reactions slow. The voltage provided by a cell depends on the electrode material, their surface area and material between the electrodes (electrolyte). Current flow stops when the connection between the electrodes is removed.

Rechargeable cells operate on the same principle, except that the chemical reaction that occurs is reversed while charging. When connected to an appropriate charger, cells convert electrical energy back into potential chemical energy. The process is repeated every time the cell is discharged and recharged.

Different cells use different electrode materials and have different voltage outputs (1.2, 1.5, 2 and 3.6 volts for the types discussed here). Higher voltages are possible by connecting cells in series. A set of several cells connected together is called a battery. However, because lay people do not distinguish between a 1.5 volt cell and a 9 volt battery (which comprises several cells), the term battery is widely used for both batteries and cells.

The capacity of cells is expressed in amp-hours (Ah) or milliamp-hours (mAh). The approximate time that a battery will last per charge can be found by dividing the battery pack capacity (normally written on the battery pack itself) by the average current consumption of the device. Thus a 600 mAh battery pack can be expected to power a receiver that takes 60mA for 10 hours. Cells can be visualised as consisting of a cell with a resistor in series. You won't find an actual resistor should you split open a battery

pack, but the effect is the same. Some battery types have higher values of internal resistance than others. High internal resistance doesn't matter if powering items that draw fairly low currents (eg a clock or small receiver). However, if running something like a 5-watt handheld transceiver, a battery with a high internal resistance will not deliver the current asked of it. Having explained some of the characteristics important to all batteries, we will now look at each cell type in turn.

Nickel-cadmium (NiCad)

Nickel-cadmium cells are the most commonly used rechargeable batteries in consumer applications. They come in similar sizes to non-rechargeable cells, so they can directly replace non-rechargeable alkaline or carbon-zinc cells. NiCads have a lower voltage output than non-rechargeable cells (1.2 vs 1.5 volts). This difference is not important in most cases.

NiCad battery packs have voltages of 2.4, 3.6, 4.8, 6, 7.2, 9, 10.8 volts, etc. This corresponds to 2, 3, 4, 5, 6, 7, 8 and 9 cells respectively.

NiCads perform best between 16 and 26 degrees Celsius. Their capacity is reduced at higher temperatures. Hydrogen gas is created and there is a risk of explosion when cells are used below 0 degrees.

NiCad batteries have a low internal resistance. This makes them good for equipment that draws large amounts of current (eg portable transmitting gear). However low internal resistance means that extremely high currents (as much as 30 amps for a C-sized cell!) will flow if cells are short-circuited. Short-circuiting should be avoided as it can cause heat build-up and cell damage.

Most portable transceivers come with NiCad battery packs where the cells are welded to metal connecting straps. There is good reason for this. In high-current applications, the unknown (and varying) resistance between cells and battery holder contacts can result in erratic operation. This is especially so when the transceiver is used in a salt-laden environment. An encased battery pack overcomes these difficulties and provides more reliable operation.

The normal charging rate is 10 per cent of a battery's capacity for 14 hours. For example, if a battery pack has a 600 mAh rating, its correct charging current is 60 mA. Because the charging process is not 100% efficient, the charger needs to be left running for about 14 hours instead of 10 hours. Higher charging currents are possible, but the charging time needs to be proportionally reduced. NiCads can be left on a trickle charger indefinitely if the charging current is reduced to 2% of the battery's amp-hour rating. Avoid the build up of heat during charging for long battery life.

NiCad batteries require a constant current charger; ie one where the current provided to the battery is fixed over the entire charging period. Such a charger can be something as simple as an unregulated DC power supply with a series resistor to limit the charging current into the cells. If the charger's voltage and the battery's desired charging current is known, Ohm's Law can be used to calculate the correct series resistor value. Because NiCads have a low internal resistance, proper charging can occur with several cells in series. For best life, do not discharge NiCads to less than 1.0 volt per cell. When charging, NiCads should read 1.45 volts per cell. If the cell voltage is higher during charging (eg 1.6 or 1.7 volts), the cell is faulty and should be discarded.

You'll often hear discussions about the so-called 'memory effect' exhibited by NiCad cells. This refers to the claimed tendency of cells not to deliver their rated voltage when placed in a charger before being fully discharged. Belief in the existence of the 'memory effect' is widespread amongst users of NiCad batteries. However, textbooks and data from battery manufacturers make little or no mention of it. Believers say that to prevent it batteries must be discharged to 1 volt per cell before charging. Non-believers say that this discharging merely reduces cell life.

Evidence suggests that true 'memory effect' is rare. It was first noticed in communications satellites where cells were discharged to precisely the same discharge point every time. In casual amateur use batteries are most unlikely to be discharged to the same point after every use. Much of what is mistaken for the 'memory effect' is voltage depression, which is caused by long, continuous overcharging, which causes crystals to grow inside the cell. Fortunately both the 'memory effect' and voltage depression can be overcome by subjecting the battery to one or more deep charge/discharge cycles.

Another term you will hear is 'cell reversal'. This can occur when a battery of cells is discharged below its safe 1.0 volt per cell. During this discharge, differences between individual cells can lead to one cell becoming depleted before the rest. When this happens, the current generated from the remaining active cells will 'charge' the weakest cell, but in reverse polarity. This can lead to the release of gas and permanent damage to the battery pack.

NiCads can short circuit due to the build up of crystals inside the battery. The use of a fully-charged electrolytic capacitor placed across the cell can effect a temporary cure. Over-discharging of batteries invites short circuiting. Batteries should be stored charged. A lifespan of 200 to 800 charges is typical for NiCad batteries.

TO BE CONTINUED

If you would like to contribute to your Club newsletter, or to contact me for any reason, please use the address / Phone numbers below.

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