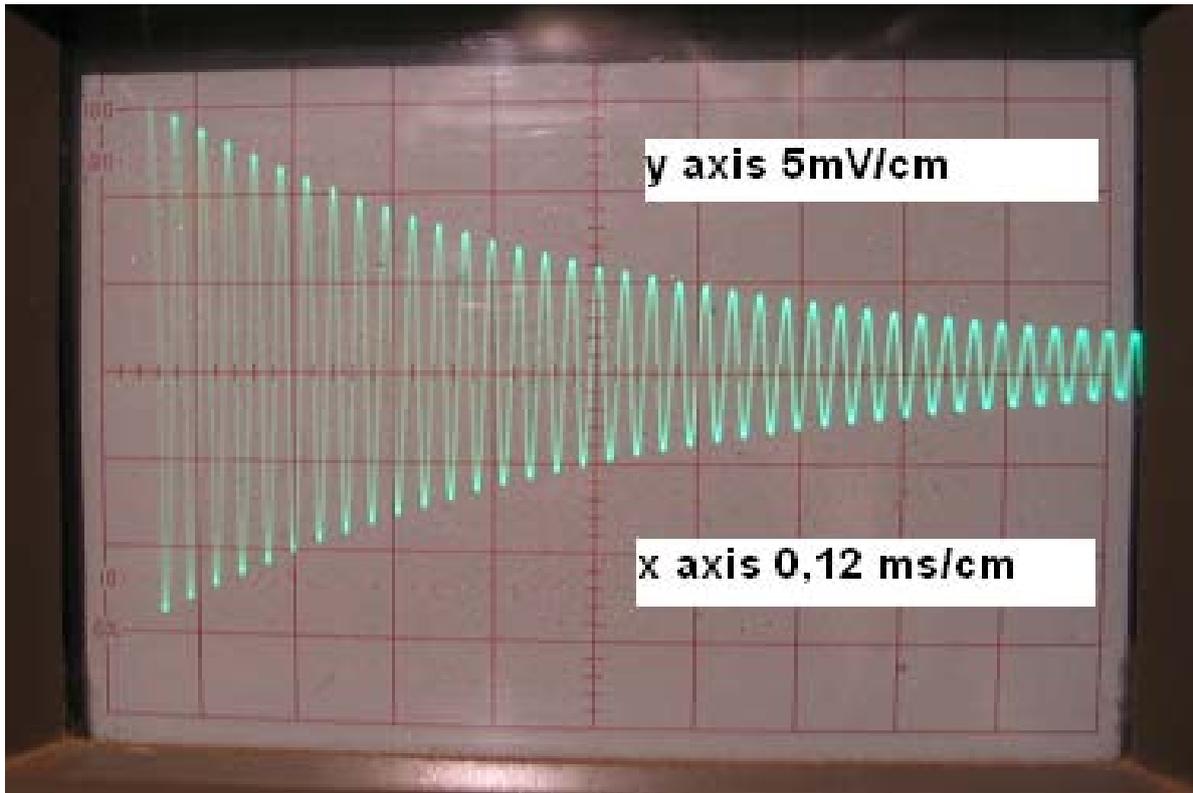


March 2015



Real hands-on experimenting!! (see inside)

This Newsletter is published by the Port Elizabeth Amateur Radio Society
P.O. Box 10402, LINTON GRANGE, 6015

Editing by Christopher ZS2AAW

QSX-PE - Newsletter for the discerning Radio Ham

Download QSX-PE from www.zs2pe.co.za/Newsletter/Newsletter.htm
or www.commco.co.za/pears.htm

PEARS Monthly Meeting

Tuesday 17th of March, 7:30 pm

ZS2AV and ZS2G – Compassberg SOTA Expedition

at the Italian Sporting Club, 17 Harold Road, Charlo.

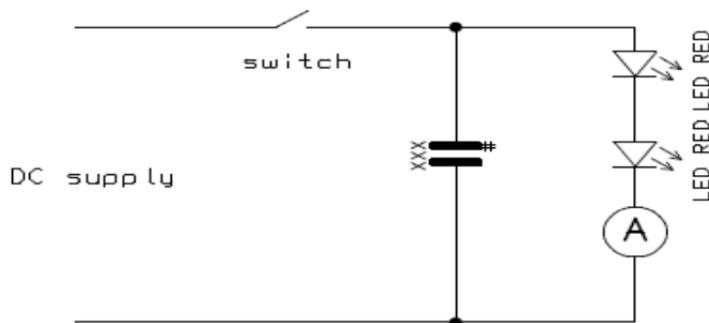
DIARY OF EVENTS

21-22 March	SARL VHF/UHF Contest
28 and 29 March	5 MHz Activity Weekend
29 March	Ironman event - volunteers required!
30-31 May	Zuurberg Trek - volunteers required!

From the Workbench

Allan, ZS2R

From time to time I tackle a new project and it is always best to supplement reading with some experimental work. With the current trend in LED lighting, there is a lot of interest in a controller for them. So I will experiment with the most efficient way of achieving this. But first some theory. Consider the following simple controller:



Briefly:- switch on, LED's light up and capacitor charges. When the current reaches the predetermined max, switch off. Capacitor discharges through the LED's, when the current drops below a predetermined minimum value switch on again and so on. You will have to be a super human

to be able to do this controlling fast enough and so it becomes the job of a PIC.

In this circuit most elements would have a very small loss in energy by comparison with that dissipated in the diodes. But real life switches like FETs (field effect transistors), BPTs (bipolar transistors) and hexFETs are not perfect switches. While the on resistance of some might be less than 0,1 Ohm, the transition resistance could be many times more.

If things could be arranged so that the voltage across the switch goes to zero from time to time then that would present the ideal moment for switching. That way the losses in the

switch would be minimal because $V * I = 0$. A way of achieving this was presented in 1983 and is called resonant switching (ref. 1).

To understand this technique we need to look again at the simple resonant circuit. I set up the following circuit (fig 2) and displayed the voltage across L on the oscilloscope. The audio frequency square wave and relatively small capacitor C1 provides pulses to stimulate the resonance. Notice how these pulses from the signal generator cause the circuit to go into oscillation and how the amplitude of these oscillations decreases with time. The frequency of the AF signal is set low enough so that the next pulse comes only after the oscillations have died down. In this case the AF frequency was set at 120 Hz. These are called damped oscillations and if there is a load

on the circuit the oscillations die down a lot quicker. A study of this phenomenon covers a lot of electronics, physics and mathematics. By the way, the Q of the circuit can be simply obtained by counting the number of oscillations from maximum amplitude to half that value and multiplying the result by 4,5. Those with an oscilloscope would do well to remember this simple rule of thumb for any tuned circuit.

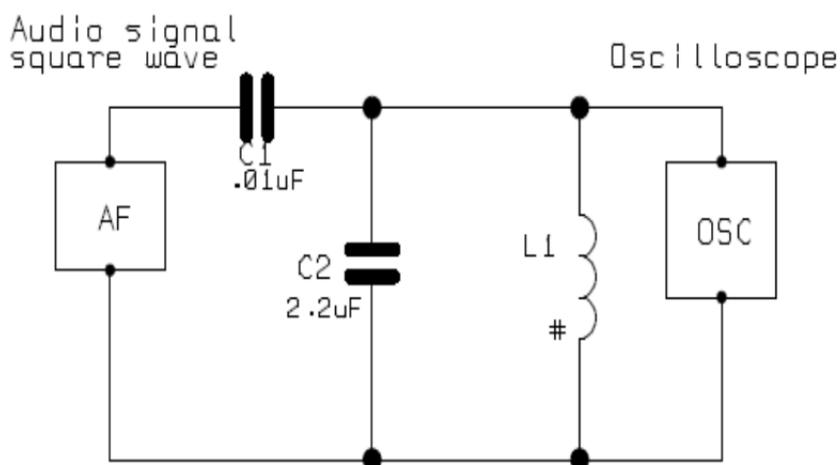
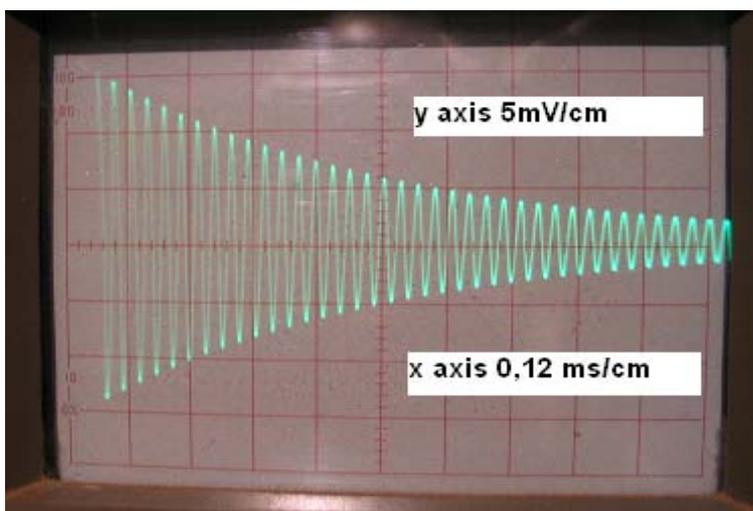
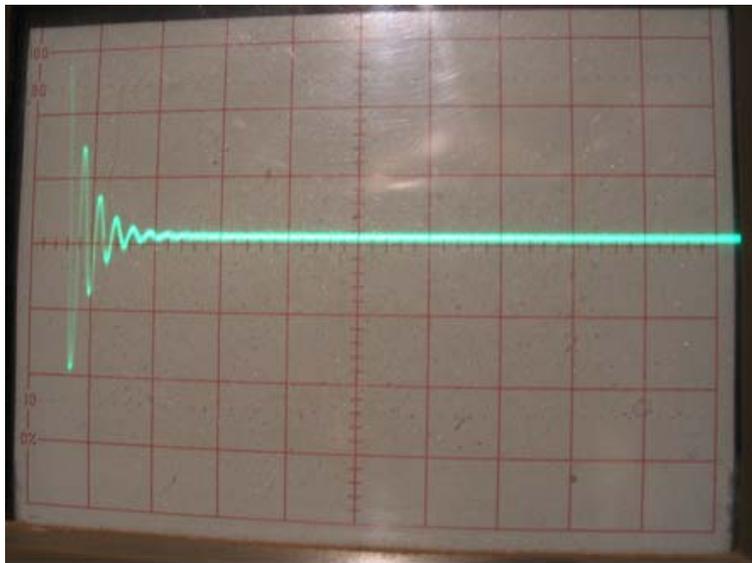


Fig. 2

Below are the oscilloscope displays of two such decaying oscillations with different loads. In the first no load added, while in the second a load resistor of 10 ohms was added across L1.





In both pictures the oscilloscope settings have been kept the same.

In a power supply the load is likely to be so heavy that the oscillations would be limited to one cycle or even part of a cycle. In the next experiment I will connect up a zero voltage resonant switching circuit along the lines of that described in ref1.

Note: In this experiment I used components from the junk box. If you struggle to get a good display on the oscilloscope it might be that the square wave is not square enough (rise time too small !).

Ref 1 Unitrode application note U-138

(End of Part 1)
---oooOOOooo---

RESULTS OF THE PEARS NATIONAL VHF & UHF CONTEST 2015

Mike Bosch, ZS2FM

Digital communications excelled this time in the PEARS National VHF & UHF Contest, when a number of long distance contacts were recorded country-wide, a new VHF contest distance record was established on 50 MHz digital, and the first DX station logged from a neighbouring state. However, poor weather conditions, rain, gale force winds, and power failures in some areas limited the distances on analogue to under 400 km as well as the number of analogue contacts made, and unfortunately the field stations were also missing on the air. Nevertheless 30 logs were received, with the most coming from Division 1, and QSO's were recorded on all five bands: 50, 70, 144, 432, and 1296 MHz.

Grand Overall Digital Winner: Andre Botes ZS2ACP 6987 points.

Overall 1st Runner-up: Dick Coates ZS6BUN 6298 points.

Overall 2nd Runner-up: Pieter Jacobs V51PJ 5858 points

Longest distance on 50 MHz:

Winner: Ettienne Vosloo ZS1AX & Jan "Pine" Pienaar ZS6OB 1290 km.

Runner-up: Dick Coates ZS6BUN & Ettienne Vosloo ZS1AX 1255 km.

Longest Distance on 144 MHz:

Winner: Koos du Plessis ZS6BFD & Pieter Jacobs V31PJ 1115 km.

Runner-up: Andre Botes ZS2ACP & Pieter Jacobs V31PJ 1086 km.

Grand Overall Analogue Winner: Michael Folkey ZR4MF 3338 points

Overall 1st Runner-up: Koos du Plessis ZS6BFD 2572 points

Overall 2nd Runner-up: Dr. Eric Hosten ZS2ECH 868 points

Divisional Analogue Winners

Division 1: Mike Kellett ZS1TAF 557 points

Division 2: Dr. Eric Hosten ZS2ECH 868 points

Division 4: Michael Folkey ZR4MF 3338 points

Division 6: Koos du Plessis ZS6BFD 2572 points

Rover Category Winners

Overall Winner: Glen Verran ZS1VG/R 145 points

Runner-up: Sean Snyman ZS1SGS/R 101 points

Prize Winners of the 144 MHz FM Category

Division 1: Sybrand Strauss ZS1SAS 60 points. Prize to be donated by Boland Amateur Radio Klub.

Division 2: Amanda la Mude ZS2AV 80 points. Prize to be donated by Rory Morton ZS2BL of S.A.Ham-Shack.

PEARS wish to express their sincere thanks to all the sponsors for offering to donate prizes. New certificates are being designed and will be e-mailed to the winners and runners-up as soon as available.

---oooOOOooo---

HAMNET as a Community Service...

Tony ZR2TX

HAMNET has been investigating the requirements to be recognized as an Emergency Organisation. This stems from the need to integrate with other such organisations in times of emergency / disaster.

As many of these organisations have legal standing i.e. are national or local government structures, they are reluctant to utilize services of unregistered volunteer groups as this poses legal liability questions. Also there is no clear guarantee as to the skill level of such volunteers.

As such HAMET is seeking recognition by the relevant authorities in order to streamline operations when they are required to provide assistance. They have turned to the SARL Constitution (extract below) and other relevant legislation to motivate for such recognition. PEARS committee will be following these efforts closely as it has potential bearing on a number of the clubs current activities.

Extract of the SARL Constitution:

1. OBJECTIVES

The sole or principal object of the League is to promote social and recreational amenities or facilities for the members in a non-profit manner. (In my mind this does not preclude anyone from being compensated for costs incurred.) This will include:

- 1.1 To encourage, develop and promote all activities, matters and studies connected with amateur radio, television, computer technology, and radio science generally throughout Southern Africa.
- 1.2 To provide the Members of the League a recognized channel for negotiation with the Government and in particular, the ICASA, and any other authorities.
- 1.3 To give the Members of the League the advantage of collective representation and control in all matters affecting amateur radio.
- 1.4 To promote international goodwill and understanding between South Africa and other countries by means of international amateur radio communication.
- 1.5 To promote and obtain recognition for amateur radio in all spheres of South African society.
- 1.6 To provide emergency communications facilities, through its Members by means of amateur radio, to the government and people of the country in times of disaster or emergency.
- 1.7 To provide radio communications in support of community activities.
- 1.8 To undertake any other matters which may arise and which concern the interests of the League, its Members or Amateur Radio.
- 1.9 To invest and apply any monies not immediately required for the purposes of the League in such manner as the League may from time to time think fit.
- 1.10 To Purchase, take on lease or exchange, hire or otherwise acquire any real or personal property, moveable or immovable, or interest therein or any other rights and privileges which the League may think necessary or convenient for its purposes.
- 1.11 To raise, receive, control and administer funds by levy of subscriptions from its Members and by contributions, gifts and bequests by its Members and others; with the power to borrow, or provide, or secure payment of, monies in such manner as may

be thought fit and in particular mortgage or charge on all or any part of the property of the League (both present and future) and to repay and redeem such loan, mortgage or charge.

1.12 To associate, affiliate, or amalgamate with, or incorporate, such similar bodies as the League may from time to time consider advisable.

1.13 The League is established for the mutual benefit of the members who contribute to share the cost of providing a collective benefit. The common objective therefore excludes the personal financial gain of the individual members and trading for a profit.

We reside under the Electronic Communications Act:

“emergency organisation” means, in respect of any locality, the relevant police, fire, ambulance or traffic authority or coast guard services for that locality and any other similar organisation providing assistance to the public in emergencies...

PEARS has for the past number of years been providing services in support of sporting event communications. The above extracts were found useful in support of the PEARs stance that this is good practice and good exercise for the local hams.

Questions have been raised in the past as to the purpose of these activities and the answer lies in the constitution of our own national body, particular point 1.6 and 1.7 above. Your committee remains convinced that participating in these activities not only provides training in the preparation and use of your equipment, both on VHF and HF, but also fulfills an important public service role.

We currently have in excess of 25 members who regularly participate in such activities and all have gained a better understanding of our hobby through this. If you have not been involved in the past but find this interesting then volunteer the next time, and enjoy some good camaraderie with your fellow hams while "Playing Radio"

---oooOOOooo---

Swops (email swopshop@peham.co.za)	
WHAT....	WHO...
2m Base station antennas – end fed half wave	Ken ZS2OC – 041 379 1856
HUSTLER 4BTV, 4 BAND trap vertical for HF 40,20,15 and 10 meter bands	Les ZS2VA – 083 444 5125 lbarker@mweb.co.za
Desktop sucker cup PCB clamp – useful for holding any size board for repairs, soldering etc – adjustable. (on behalf of ZS2EJ)	Chris ZS2AAW– 082 925 6367 christopher@peham.co.za

CONGRATULATIONS

BIRTHDAYS – March

- 01 Rudi Goosens ZR2RCG
- 03 Daphne Galpin, XYL of Paul ZS2PG
- 08 Errol Kleinhans ZS2EK
- 13 Margaret Ras, XYL of Martin ZS2MR
- 15 Susanna Bosch, XYL of Mike ZS2FM
- 16 Anne Butcher, XYL of Graham ZS2GIB
- 21 Andrew Gray ZS2G
- 22 Peggy Moore, XYL of Viv ZS2VM
- 29 Allan Whitehead
- 31 Terrence van der Linden ZS2VDL

BIRTHDAYS – April

- 01 Rosalee van Loggerenberg ZS2DN
- 01 Joan Jackson, XYL of Barry ZS2H
- 02 Jarrad Brown ZR2JAB
- 03 Theunis Potgieter ZS2EC
- 05 Rey Martin, XYL of Saney ZR1S
- 05 Hugo Ras ZS2HR
- 07 Christel Opperman, XYL of Micho ZS2MD

- 12 Andre Potgieter ZS2ZA
- 13 Lizette Oelofse, XYL of Nico ZS4N
- 13 Graham Butcher ZS2GIB

ANNIVERSARIES – March

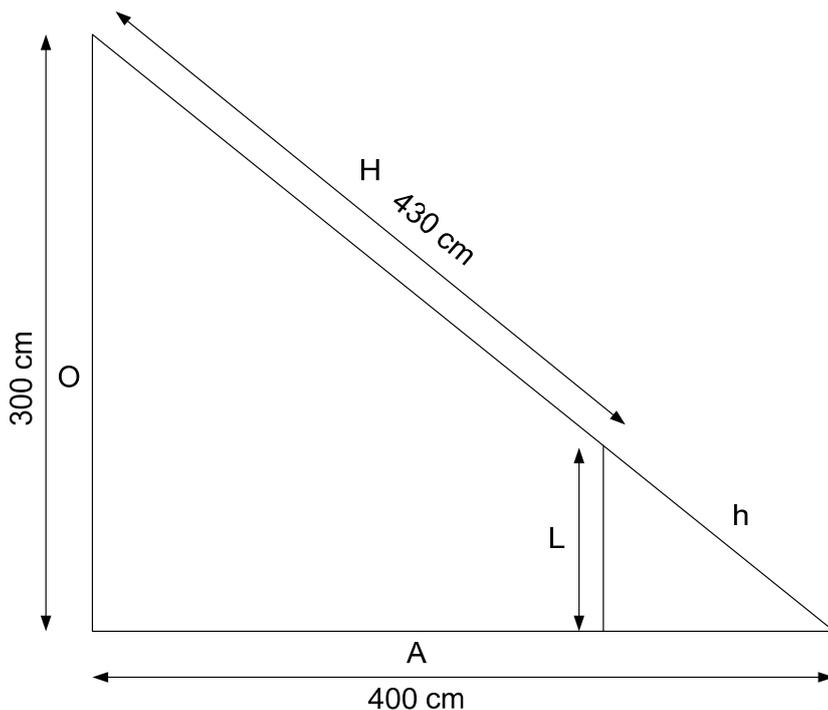
- 03 Anne & Graham Butcher ZS2GIB
- 22 Rudi & Ellie Goosens ZR2RCG

ANNIVERSARIES – April

- 03 Hugo & Juan Ras ZS2HR
- 04 Glen & Vanessa Cummings ZS2GV
- 06 Wolf & Cathy Gerstle ZS2WG
- 08 Mitch and Colette Rundle ZS2DK
- 09 Otto and Charmaine van Rooyen ZS2Q

If you are a member and your birthday or anniversary details are omitted or incorrect, please notify Clive ZS2RT (or any committee member) to update our records.

Answer to December's Brain Teaser



ZS2U's Answer:

$$L = 42\text{cm}$$

Formula to use is

$$\begin{aligned} L &= O - H (\sin (\tan^{-1} O/A)) \\ &= 300 - 430 * \sin (\tan^{-1} 300/400) \\ &= 42 \text{ cm} \end{aligned}$$

ZS2AAW's answer:

(for those that don't like trigonometry!)

Since the triangle is 3:4:5 right angled, then the total length of the Hypotenuse is 500cm.

Thus the smaller "h" is $500 - 430 = 70 \text{ cm}$

A simple ratio can tell the portion L of the full length O:

$$h/(H+h) = L/O$$

$$70/500 = L/300$$

$$\text{So } L = 70/500 * 300 = 42 \text{ cm}$$

ZS2PP Antenna modification visit

Chris ZS2AAW & Trevor ZS2AE

We visited Phil ZS2PP in Port Alfred during a weekend stay at Bushmans, with the intent of erecting an 80m dipole on the existing 40m dipole Phil uses for his home-brew HF set and home-brew linear amp. This meant a slight modification to the greenery in the garden to make space for one of the antenna legs, as well as remove the annoying scraping of the tree on the roof during windy conditions – a two-fold gain (assume that equals 3dB!!!)



The new standard 2.5mm² house wire dipole legs were soldered onto the centre insulator and weatherproofed.

The antenna is conveniently lowered by means of a pulley and rope, so climbing to the top of the roof was not necessary (thanks Phil!)

ZS2PP checking on Trevor ZS2AE's workmanship 😊

Once the tree was cleared, the antenna went back up into the sky and we retreated to the shack to test. All seems well, as Phil has reported good results on 80m now too.



The final product – delicious shortbread was earned (thanks Pam) 😊

Sunday Bulletins

PEARS provides a local reading of the SARL national bulletins in Afrikaans at 08h15 and English at 08h30. The club bulletins are transmitted immediately after the SARL English bulletin, i.e. at about 08:45 on 7098 kHz as well as the 2m linked network that provides coverage from Butterworth to George and up to the Free State and their environs.

A recorded rebroadcast of the society bulletin takes place on the Eastern Cape Linked Repeater Network every Monday night at 20h00, courtesy of Ewalt, ZS2EHB.

Bulletin Roster

15 March	Clive	ZS2RT
22 March	Johannes	ZS2JO
29 March	Tony	ZR2TX
5 April	Theunis	ZS2EC
12 April	Chris	ZS2AAW
19 April	Nick	ZS2NT
26 April	Clive	ZS2RT

The bulletin readers are always looking for something to announce. If you have something to contribute, please forward it to the next reader.



HAM RADIO OUTLET-SOUTH AFRICA cc

“Where Radio is a Passion”

Port Elizabeth’s official distributor of YAESU, Kenwood and ICOM amateur equipment



For all your Amateur needs from plugs to coax....
give us a call 041 3711425
Speak to Donovan (ZS2DL) or Andre (ZS2BK)

We Ship Country Wide!

Visit <http://www.hamradio.co.za>

For all your ham radio requirements!

Your Society's Committee for 2014-2015

Chairman	Nicholas Thompson ZS2NT	082 490 0824	Nick.peham[at]gmail.com
Vice Chairman, Technical/repeaters	Glen Cummings ZS2GV	082 411 2743	glenvanessa[at]gmail.com
Secretary, Functions organising	Patsy Kruger ZS2PTY		patsy[at]peham.co.za
Treasurer	Clive Fife ZS2RT	041 367 3203	clive[at]peham.co.za
Public Relations	Johannes Geldenhuys ZS2JO	082 320 3032	Johannes[at]s4.co.za
Events, Rally organising	Tony Allen ZR2TX	082 956 2920	tony.zr2tx[at]gmail.com
QSX Distribution, Contests, Awards, ZS2PE	Theunis Potgieter ZS2EC	082 766 8830	zs2ec[at]vodamail.co.za
Technical/repeaters, WiFi	Chris Scarr ZS2AAW	082 925 6367	christopher[at]peham.co.za
CO-OPTED POSTS			
RAE Examination Admin.	Donovan ZS2DL	082 852 4885	zs2dl[at]hamradio.co.za
Assessors	Rory ZS2BL Chris ZS2AAW Bill ZS2ABZ	072 026 8909 082 925 6367 041 581 2580	rory[at]commco.co.za christopher[at]peham.co.za zs2abz[at]isat.co.za
Hamnet scoring	Al ZS2U	041 360 2983	al[at]peham.co.za
Contest Committee	Theunis ZS2EC	082 766 8830	contest[at]peham.co.za
PEARS VHF/UHF Contest	Mike ZS2FM	084 612 9600	mikebosch[at]gmail.com
Meetings catering	Bill Hodges ZS2ABZ	041 581 2580	zs2abz[at]isat.co.za
QSX Editor	<i>Vacant</i>	-	-

Replace [at] with @ when you want to send an email (this is done to try to prevent spamming).

PEARS' VHF/UHF, Packet & Other Services

Local Repeaters: These repeaters form a separate sub-net in the PE - Uitenhage - Despatch area.

Town VHF 145,050/650	Town UHF 431,050/438,650	Uitenhage 145,075/675	Longmore 145,025/625	IRLP available on this subnet
--------------------------------	------------------------------------	---------------------------------	--------------------------------	---

Cape Linked System Repeaters:

These form the PEARS long-range 2-metre repeater system, in conjunction with the Border, Southern Cape and WCRWG systems. See www.zs2pe.co.za/Repeaters/repeaters.htm for more details.

Lady's Slipper 145,100/700	Grahamstown 145,150/750	Cradock 145,050/650	Noupoort (link only) 438,750 / 438,675
Colesberg 431,075/438,675	Kareedouw 145,125/725	Plett 145,175/775	Brenton 145,075/675

Packet network:

ZS0NTP-2 Packet Node Lady's Slipper 144,800 1200bd 439,850 9600bd 434,800 1200bd APRS	ZS0NTP BBS Lady's Slipper On all node frequencies	ZS0GHT-2 Packet Node Grahamstown 144,800 1200bd 434,800 1200bd 439,850 9600bd (to LS)	ZS0CDK-2 Digi Cradock 144,800 1200bd
	ZS0KDJ APRS Digi Mount Road 434,800 1200bd	ZS0KDB APRS Digi Longmore 434,800 1200bd	ZS2ABZ-4 WMR918 WX Station 144,625 1200bd

VHF Beacon: 50,007 MHz FSK – ZS2X, 25 Watts into 2 element Yagi beaming north.

Banking details (for subs & donations): NEDBANK SAVINGS ACCOUNT No. 221 252 7594, Bank code 121217, A/C name: Port Elizabeth Amateur Radio Society. **Please use call signs as a reference.**

Disclaimer.

Note: The Editor, nor any PEARS club member, shall not be held liable for errors and/or omissions in any article and/or drawing contained in this newsletter. Furthermore, any view expressed is not necessarily that of the Editor, any committee member or other members of the Club. The material contained in this newsletter is not meant to defame, purge, humiliate and/or hurt someone's person or feelings.

If copyright is unintentionally infringed, we apologise, this newsletter is published as a free service to Amateur Radio operators and friends and is neither for profit nor gain.

TO:

**IF NOT DELIVERED
RETURN TO**

Port Elizabeth Amateur Radio Society
PO Box 10402
LINTON GRANGE
6015

AMATEUR RADIO is the hobby for RADIO EXPERIMENTERS
and those who like to fiddle with ELECTRONICS,
COMMUNICATIONS or COMPUTERS