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WATTS

11 - 2008

Year 78 +11m

Monthly newsletter of the Pretoria Amateur Radio Club
Maandelikse nuusbrieff van die Pretoria Amateur Radio Klub.



PARC, PO Box 73696 Lynnwood Ridge 0040, RSA



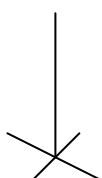
<http://www.parc.org.za> mail:zs6pta@zs6pta.org.za

Bulletins :145,725MHz 08:45 Sundays / Sondag

Relays : 1840, 3700, 7066, 10135, 14235, 51400, 438825, 1297000kHz
Activated frequencies are announced prior to bulletins

Swapshop: Live on-air after bulletin 2m and 40m

Bulletin repeats | herhalings : Mondays 19:45 on 145,725 MHz



Ivo Chládek ZS6AXT (OK2WCG) in his comfort zone

more on p6



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- Page eight Bladsy agt

In hierdie uitgawe

Next Meeting 12 Nov 2008

Time: 19:30 for 20:00
PARC Clubhouse
South Campus
University of Pretoria
SE cnr University and
Lynnwood roads

PARC Management team / Bestuurspan Aug. 2008- Aug. 2009:

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Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 11 Oct. 2008

Welcome: The vice chairman welcomed all present.

Present: See register, 12 members and 2 visitors. A special welcome to Ron Maples W3PV.

Apologies: 9 as per register

Personal: Mike ZS6AFG condition is improving and gets up occasionally. He listens to bulletin but cannot yet report in. Wessel ZS5BLY, formally ZS6BLY and a former member of PARC became silent key on 2 October. Ivan ZS6CCW and Vlasta are returning to Czech Republic on Monday, and after a holiday will be posted to Kiev in the Ukraine.

Minutes: The minutes of the previous meeting were accepted. Proposed by Alf ZS6ABA and seconded by Hans ZS6KR.

Matters Arising: None.

Correspondence: None.

Rallies: Richard ZS6UK reported on 3 rallies to be held in October. The first rally was the all tar held on last weekend, the second is the off road at Lydenburg with comms only required for this weekend, and the third is the old Tzaneen rally to be held in the Bronkhorstspuit – Bapsfontein area on next weekend.

Flea Market: The PARC spring flea market date is now 1st November.

Social: The next meeting will be Wednesday 12 November, but the December meeting will include the year end bring and braai social. The desert island trophy also takes place at the December meeting.

Finances: We have R2457-78 in the bank and R450-00 in cash. Subscriptions of 37 members are outstanding.

Contests: Contest activity will be in the next news letter.

General: Ivan ZS6CCW donated a stock of Czech beer to the club. The meeting closed at 14:40.

Editorial

At last we are experiencing increased activity on HF and some DX-peditions to rare entities can again be heard and worked. HF awards on offer have always been the driving force for probably 50% of all HF activity. (hence the phenomenon of pile-ups!) Go for WAS, WAZ or (5B)DXCC and you will find the DX bug will bite you to reach that goal -and beyond – with acquisition of invaluable experience on antennas, propagation and operating skill.

Redaksioneel

Uiteindelik ondervind ons verhoogde aktiwiteit op HF en sommige DX-pedisies na seldsame entiteite kan weer gehoor- en gewerk word. HF toekennings wat aangebied word was nog altyd die stukrag agter waarskynlik 50% van alle HF aktiwiteit. (Vandaar die verskynsel van 'pile-ups'!) Gaan vir WAS, WAZ of (5B)DXCC en jy sal vind dat die DX-gogga gaan byt om daardie doel te bereik – en nog meer – met onskatbare ondervinding oor antennas, voortplanting en bedryfsvernuif.



Birthdays

Nov Verjaarsdae



- 03 blaine, son of Heather and Vince ZS6BTY
- 06 Brian ZR6BJS
- 06 Sollie ZS6SV
- 07 Adele, sw van Hans ZS6HVG
- 07 Gerhardt, seun van Bernice en Pieter ZR6KSA
- 09 Alta, sw of Johnny ZR1BAJ
- 10 Luther ZS6E
- 11 Peggy, sw of Ed ZS6UT
- 15 Nico ZS6AQ
- 16 Jean, dogter van Lynn en Andre ZS6BRC
- 16 Vlasta ZS6-2501, sw of Ivan ZS6CCW
- 19 Joe ZS6TB

Nov

Anniversaries Herdenkings

- 04 Estelle en Simon ZS6AST (36)
- 11 Aletta en Alf ZS6ABA (41)
- 22 Heila, sw of Melvyn ZS5MF
- 22 Chris ZS6BGH
- 22 Caitlin, daughter of Heather and Vince ZS6BTY
- 25 Gordon ZS6AGV
- 25 Johan ZS6KZ
- 26 Bridge ZS6BJM
- 27 Janice, dogter van Ellen en Joe ZS6AIC

Nuwe Lid Welkom aan Philip Luwes ZS6MZ

Joys and Sorrows | Lief en Leed

- **Ivan ZS6AUT** is reportedly still unwell
- **Mike ZS6AFG** steadily recuperating and listening to bulletins
- **Ivan ZS6CCW and sw Vlasta ZS6-2501** have left us for → a two year assignment in Ukraine. They were very active club members and we will sorely miss them!
- **Bill ZS6KO** recently had a birthday surprise with the unexpected visit of his QRP friends Barry ZS6AJY, Ronnie ZS6BUG and Ken ZS6NB. Apparently it became a late night affair.
- **Wessel ZS5BLY/ZS6BLY** is onlangs oorlede. Hy was vir baie jare 'n Pretoria klub lid en het na aftrede in Himeville, Natal gaan woon.

Diary | Dagboek (UTC times)

- Nov 01 PARC Mega-Fleamarket**
- 01-02 Ukranian DX CW Contest 12:00-12:00
- 02 DARC 10 metre Digital contest 11:00-17:00
- 08-09 WAE RTTY DX Contest 00:00-23:59
- 08-09 OK/OM Contest CW 12:00-12:00
- 12 PARC Wednesday evening club meeting**
- 15-16 ARRL EME contest 00:00-23:59
- 15-16 **SARL HF Field Day Contest 10:00-10:00**
- 15-16 Austrian 160m Contest 16:00-07:00
- 15:16 RSGB 1,8MHz Contest CW 21:00-01:00
- 22-23 LZ DX Contest 12:00-12:00
- Dec 05-07 ARRL 160m Contest 2200-1600**
- 13 PARC Saturday meeting – Bring VHF/UHF projects, Desert Island yarn etc.**



FUTURE MEETING DATES

Even months:	Odd months:
Saturdays 14:00	Wednesdays 20:00
Dec 13 2008	Nov 12 2008

Snippets | Brokkies

- **Jean ZS6ARA** was met twee weke verlof by die see
- **Doppies ZS6BAQ** het vanaf 9 Okt in Namibië gaan vakansie hou.
- **Johnny ZS1BAJ (ex ZS6BAJ)** now in the Cape sent in this antenna picture silhouetted in a magnificent sunset →
- **SARL HF CW Contest: PARC came second in the club category and Hans ZS6KR 3rd in combined results as well as 1st in the CW category followed by Ed ZS6UT in 2nd place**
- **Tjerk ZS6P** has reached the currently maximum obtainable DXCC number of countries with 337/338. Number 338 will be the elusive Yemen (70) where local regulations forbid amateur radio operation. For an overview of how ZS stations are doing in the Honor Roll stakes, visit our website Awards Page. Minimum qualification to be eligible = 329 entities.
- Check out the **propagation tab on our website**. By courtesy of Vince ZS6BTY we can offer up-to-date predictions for DXers.



An IARU Endorsed Booklet Promoting Ethics is available at: www.rsgb.org/operating/. 67 pages, copyright IARU.

2008 VHF/UHF contests – the trials and tribulations of contesting

an in-depth report by Pieter ZR6AHT

When the going gets tough, PARC perseveres

During the third full weekend in September, the final leg of the VHF/UHF contest was held. Once again the PARC competed and we had a title to defend. Being the category winners of 2007 and having a near disastrous first leg, we had to do something to defend our reputation.

First leg: March 22/23

The pictures of the first leg will speak for themselves! A massive "cut-off low" hit Gauteng during the weekend while PARC was camping on the mountain near the Donkerhoek mine, 30km east of Pretoria.



The rain started pouring down from about 17h00 Saturday and continued right through the night and the next day.

After an estimated 50mm of soaking rain, the decision was taken to pack up and head home for some dry clothes and hot coffee.

Everything was soaking wet! However we managed to win the leg with limited number of contacts made in about 4 hours.



At 08h00 the next morning the decision was taken to pack up as it was raining non-stop. Needless to say *we were soaking wet and cold.*

To all the team members, Lynette-ZR6LHT, Hans-ZR6HVG, Willie-ZR6WGR, Pierre-ZS6PJH and Pieter ZR6AHT a big thanks, you all deserve a merit for courage!

Second leg: September 19/20

Highly motivated we met early Saturday morning, 19th Sept, at the Donkerhoek site for the second and last leg of the contest.

Min het ons geweet wat vir ons wag! Antennas is gemonteer, maste is opgetrek en toe begin die wind waai, en die wind waai sonder ophou! Lynette het op 'n stadium die anemometer (windspoedmeter) uit gepluk en 'n paar lesings geneem. Met tye was daar 'n pieke gemeet van 35km/uur.

Maar saam met die wind uit die weste kom daar toe ook besoekers aan, Lourens - ZS6KRT en Hannes – ZU6HDT. Almal luister aandagtig toe Pierre kontak maak met die 11 jaar oue Mitchell ZU6M, dit word later 'n QSO nadat meer as net die nodige ruitverwysings en seinsterkes uit geruil is. Wel gedaan Mitchell, hou so aan.

Later die middag soos die son sak en die wind draai na die suide, tref die tweede plaag ons: KOUE gemoduleer teen 20km/uur! Teen 21h00 besluit ons om te gaan inkruipe nadat die "occasional" kontakte ook begin opdroog het. Al die frekwensies was stil, ons was ook stil en stokstyf van die koue.



Improvised brake lock



Hans het probeer water kook vir koffie op die gasstofie maar was nie baie suksesvol nie as gevolg van die wind wat die vlam bly doodwaai. Baie traag het ons die volgende oggend ontwaak, begroet met 'n termometer wat op 4 grade gestaan het, binne Hans se voertuig, en die wind waai nog sonder ophou!

Luckily the contacts started rolling in from about 7h30 the next morning and there were a rejuvenated spirit among the stiff and cold team members, specially after the contact made on 1296Mhz with Carl - ZS6CBQ in Krugersdorp. After contact was establish on 10w the power was reduced to 3w, maintaining voice on FM and SSB, at a distance of 79km.

In general participation was very disappointing, contacts on all the bands were considerably down except for 1296Mhz. New kids on the bloc on 1296 were Johan ZS6JPL and Pine ZS6OB.

With the clock ticking towards 12h00 the end was in sight, but the wind was still blowing to such an extent that we had to request backup to get the main mast down. Backup came in the form of Lourens ZSKRT who assisted us with the winch on his vehicle to slowly let the mast down.

To all the team members, Craig ZS6RH and family, Lynette ZR6LHT, Hans ZR6HVG, Pierre ZS6PJH and Pieter ZR6AHT, you have established yourselves as a formidable team that can work together under any conditions and we eagerly await the outcome of the 2008 results. Thanks to all of you out there that made contact with us during this year. Last a big thanks to Johan ZS6JPL and Pine ZS6OB for the equipment that was made available to us during the year.

Beaming into the future --2009

What was disappointing was the number of contacts made with our own club members. Apart from personal satisfaction, winning this competition, is also winning it for PARC. This can only be achieved with the participation of all the members.

For those of you who have never participated in a field station, the scale of operations before the first contact can be made is huge, not to mention the financial burden. Personal satisfaction will always be the key motivator for success in any sport or event.

For the next year let us all see this as a chance to test your own operating skills and your station's functionality. This does not just imply making contacts from your home station. Your mobile can also qualify as a station. Turning back the clock many years, during the late 80's Chris Burger ZS6EZ and his team used a chopper to do some grid hopping, setting up a small station at various high sites. It will be a great day if his can be achieved again in the future.

Earlier, mention was made about the financial implication. The monetary value of a well equipped VHF/UHF field station can easily reach R100k. This can only be achieved with the merger of equipment and resources from a group of radio amateurs.

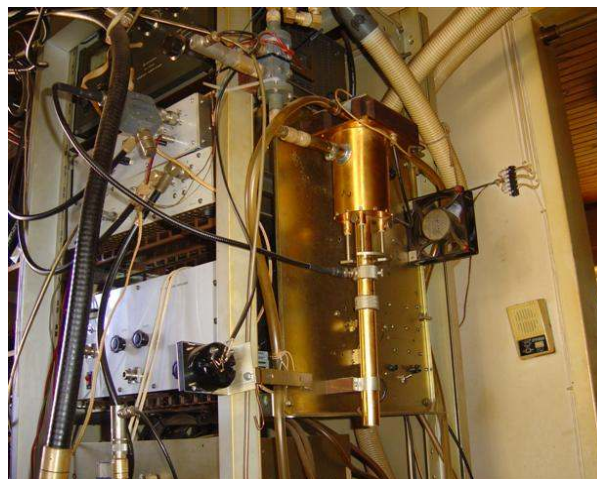
This PLEA for participation extends far beyond the boundaries of PARC members but to every other radio club and individual radio amateur in South Africa. Maybe it is time to revisit the rules and dates of the contest - only you can tell us.

I will prepare a number of proposed rule changes for publication in WATTS, which can be in turn be debated at a future club meeting. Also on the cards for the new year is a slide show and discussion on setting up a field station for contests.



12:33 Using Lourens' vehicle winch to lower the mast

More of the ZS6AXT station:



Ivo has made 4000 QSO's with this dish on 70cm, 23cm, 13cm and 6cm EME. Prior successes were 2 EME QSO's to the US with a yagi. Virtually all contacts were in CW – no digital modes. He is classified in all contests as a QRP station.

The second photo shows a view of his 13cm water-cooled PA at about 200W which will soon be replaced with a solid-state PA of similar power. Is 200W QRP? Ivo informed us as follows: 200 W and 5 m dish is QRP, it works on EIRP! Most of the guys today have 0,5 to 2,5 kW and up to 10m dishes ! That is then QRO, hi. They have 599 signals! At best I have 559 own signals.

He also supplied WATTS with his ham career history, current activity and a challenge:

"I started with radio in 1948, in Dec 1949 did the test and became registered operator for a club station. 1956 after University got my first call OK2VCG and was on the satellites, then meteor scatter, aurora etc. In 1968 I emigrated to ZS and after being licensed started on VHF, first satellites, then 12/6/1988 first EME QSO with HB9RM with a small 2,5 m dish and made a further ten 23 cm QSO's with it before I finished the present 5 m dish, with the first QSO on 23 cm 16/9/1989. Then operated for a short while also on 70 cm EME, after that 13 cm and 6 cm EME. All QSOs are CW or SSB only. At present after three direct lightning strikes, burglary and flooding of the shack I am temporarily QRT, but now erected a 2,5 m Andrew solid dish and hope to be soon on 3cm / 10 GHz EME. On tropo I am ready on all vhf / uhf bands up to 24 GHz. Any takers?"

Long Term HF Propagation Prediction for Nov. 2008

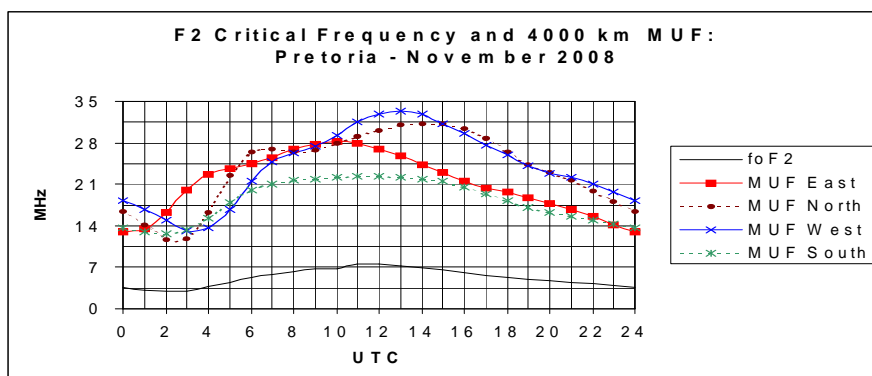
courtesy ZS6BTY

DX Operating

The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

Local Operating

The F2 critical frequency (foF2) is the maximum frequency that will reflect when you transmit straight up. E-layer reflection is not shown.



Philips ceases standard TL-tube sales and production and related electrics.

Its drive for a better 'green' image will rid the Benelux by 112m kg CO₂ emission per annum. Only 'green' tubes will be produced containing 75% less mercury which also waste less energy in their drive circuit.

Factories in the US, Indonesia and Poland will also switch over.

Two years ago a farewell to incandescent lamps was also announced to be final by 2016. Current consultations with the EU may bring this date forward.



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Understanding MFJ analyzer readings

ZS6KR



In an older publication of QEX there was a reader's query and explanation regarding the interpretation of MFJ antenna analyzer SWR and impedance readings which I copied and filed at the time. Rediscovering this, it is worth publishing here with some expanded explanation to clarify why readings sometimes appear untrue though they are not:

MFJ: $Z=52 \Omega$, $R=42 \Omega$, $X=32$ (sign unknown) $SWR=2,0$
At first sight this is a good impedance match to a 50Ω system, but $SWR=2,0$ Why?

For complex loads the magnitude of SWR is NOT= Z_{load}/Z_0 or Z_0/Z_{load} , and we must take into account the reactance as follows using standard theory:

$$SWR = \frac{1 + \rho}{1 - \rho} = \frac{V_{max}}{V_{min}} \quad \text{where } \rho \text{ is the absolute value of } \frac{Z_{load} - Z_0}{Z_{load} + Z_0} \quad \text{where either } Z_{load} \text{ is complex } (42 \pm j32).$$

Squaring the expression gets rid of "j" and results in $\rho^2 = \frac{(42 - 50) + 32^2}{(42 + 50) + 32^2} = 0,11$

Thus $\rho = 0,34$ and $SWR = \frac{1 + 0,34}{1 - 0,34} = 2,0$

The impedance is calculated by the analyzer in the normal way: $Z = \sqrt{42^2 + 32^2} = \sqrt{2788} = 52,8 \Omega$

It is only for purely resistive loads that $SWR=Z_{load}/Z_0$ or Z_0/Z_{load}

For instance for a 75Ω dipole in resonance fed by a 50Ω source $\rho = \frac{75 - 50}{75 + 50} = 0,2$

Thus $SWR = \frac{1 + 0,2}{1 - 0,2} = 1,5$ which also tallies with $SWR = \frac{75}{50} = 1,5$

Hence, whenever (assuming your analyzer is properly calibrated) your analyzer indicates considerable reactance, the Z and SWR readings should make sense according to the first example while for X close to zero the figures should make sense according to the second example's simplified expressions.

Now for another erroneous interpretation often done:

Tuning antennas with an arbitrary length of transmission line feeder will not fool the MFJ but you, the operator. You may tune as much as you like, but the MFJ is looking at the feeder plus antenna and shows the *system impedance*.

How do we truly know what the situation is at the end of the feeder?

By making the feeder of such a length at the frequency of interest that it acts as a 1:1 transformer.

Ever half-wave in a transmission line gives a 1:1 transformation with a phase reversal every time, which for MFJ purposes we can ignore.

The physical length of a half-wave cable = velocity factor $\times \frac{1}{2} \times 300/\text{MHz} = \approx 67\% \times 150/\text{MHz} \approx 693\text{mm} @ 145\text{MHz}$

For any installation or test cable thus use any multiple of $\approx 693\text{mm}$.

To verify the full cable, short it at the end and check with the MFJ for zero or minimum resistance at the frequency of interest. Generally it is wise to cut the cable slightly longer and snip little bits off until the correct frequency is reached.

Feeding an HF 10,15,20m tribander is also possible with this philosophy as the three frequencies are harmonically related:

A full wave on 20m = 2 full waves on 10m and 3 half waves on 15m.

Thus making the smallest unit of cable length a full wave on 20m, we get physical length=14,10m for $f=14,25\text{MHz}$

Thus in any installation use any multiple of $\approx 14,10\text{m}$ and coil up any excess.

Again, verify the correct overall length by shorting the end and checking for $R \approx 0$ at the 3 frequencies.

Long cables or moderate lengths of thin cable will of course not show $R=0$ but a higher minimum reading due to losses.

For an existing installation, proof of a correctly tuned 50Ω antenna can only be found when adding various lengths of cable onto the feedline and verifying that readings remain at $R \approx 50$ and $X \approx 0$.

MFJ 259/269 Calibration Service
 Hans ZS6KR offers to calibrate your analyzer for R175.- Repairs also undertaken.
 Two day service.
 Phone 012-333-2612 or 072-204-3991

Job seekers write...

My intensity and focus are at inordinately high levels, and my ability to complete projects on time is unspeakable..

I have an excellent track record although I am not a horse..

Exposure to German for two years, but many words are not appropriate for business...

Education: curses in liberal arts, curses in computer science, curses in accounting..

I am loyal to my employer at all costs. Please feel free to respond to my resume on my office voicemail...

Great stuff?



Heathkit 1975: Building electronics kits and DIY was enormous.

HERE WE GROW AGAIN...



This summer saw the completion of another 42,000 sq. ft. addition to our plant here in the twin cities of St. Joseph and Benton Harbor. It will house our expanded Engineering staff, Purchasing, and other office support groups... and bring our total plant area to an impressive total of 500,000 sq. ft.

Highlighting the new addition is a complete new Customer Center — a "factory store", if you will, patterned after the growing number of retail Heathkit Electronic Centers that are bringing "home town" Heathkit shopping convenience to millions from coast to coast.

The new plant expansion was designed with one thought in mind — to make our operations more efficient so that we can continue to offer you the world's largest selection of timely new electronic kits, coupled with the fast delivery and helpful consultation and service you've come to expect from us.

build-it-yourself Heathkit 2-meter is your best buy



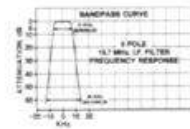
Lever switches set the exact frequency you want. 0/5 kHz toggle switch for split channel operation.



Built-in continuous/burst tone encoders are standard equipment — not expensive options!



LED indicator shows when the synthesizer is locked on frequency and ready to transmit.



8-pole crystal IF filter reduces adjacent channel interference by providing ideally-shaped bandpass.

HW-2026 SPECIFICATIONS

RECEIVER — Sensitivity: $.5\mu\text{V}$ for 12 dB SINAD (or 15 dB of quieting.) Squeech Threshold: $3\mu\text{V}$ or less. Audio output: 2 watts (typical) at less than 10%



Exceptional demand for the HW-2026 may delay shipment up to 60 days. Place your order now and we'll promptly assign you a priority number. You will be notified when to send payment.

Heathkit HW-2026 — 2-Meter FM Transceiver with synthesis

Beauty is in the eye of the beer holder.
Earth is the insane asylum for the universe.