



WATTS

09-2015

Year 85 + 9m

Monthly Newsletter of the Pretoria Amateur Radio Club
Maandelikse Nuusbrief van die Pretoria Amateur Radio Klub

✉ PARC, PO Box 73696, Lynnwood Ridge 0040, RSA
🌐 <http://www.parc.org.za> @ zs6pta@zs6pta.org.za



Bulletins : 145.725 MHz on Sundays / Sondag at 08:45

Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz

Activated frequencies are announced prior to bulletins

Swopshop : 2m and 7.066 MHz live on-air after bulletins

Bulletin repeats on Mondays / herhalings op Maandae : 2m 19:45



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Next Events

Club Social Meeting :

Saturday 5th of September from
11:00AM at the SAM Clubhouse

Club Committee Meeting :

Thursday 17th of September from
19:00 per Skype

PARC AGM : Saturday 31st of October 2015 (11h00) after the Flea market
Proxy and Nomination forms will be send with Watts and can also be downloaded from the PARC website. Please contact Louis de Wet (ZS6SK) for any enquiries.

PARC Committee Members / Komiteelede : 2014 – 2015

Chairman, Social & Rallies	Johan de Bruyn	ZS6JHB	zs6jhb@gmail.com	012-803-7385	079-333-4107
Vice Chairman	Jan Pienaar	ZS6OB	pienaarja@gmail.com		082-447-7823
SARL liason	Fritz Sutherland	ZS6SF	fritzs@icon.co.za	012-811-3875	083-304-0028
Treasurer	Andre van Tonder	ZS6BRC	andre.vtonder@absamail.co.za	361-3292	082-467-0287
Web co-ordination	Graham Reid	ZR6GJR	greid@wol.co.za		083-701-0511
Bulletin co-ordinator	Vincent Harrison	ZS6BTY	zs6bty@telkomsa.net	012-998-8165	083-754-0115
Contests	Pierre Holtzhausen	ZS6PJH	zs6pjh@telkomsa.net	012-655-0726	082-575-5799
Repeaters	Craig Symington	ZS6RH	zs6rh@hotmail.co.za		081-334-6817
Fleamarket	Almero Dupisani	ZS6LDP	almero.dupisani@up.ac.za		083-938-8955
Clubhouse	Pieter Fourie	ZS6CN	pieterzs6cn@gmail.com	012-804-7417	083-573-7048
Photographer, Technical	Theo Bresler	ZS6TVB	theo@bresler.co.za		082-698-1742
Auditor	Tony Crowder	ZS6CRO	tcrowder@telkomsa.net	011-672-3311	
Historian, Archives, Awards	Tjerk Lammers	ZS6P	zs6p@iafrica.com	012-809-0006	
Secretary, WATTS newsletter	Louis de Wet	ZS6SK	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
RAE Coordinator	Etienne Naude	ZS6EFN	etienne@afgrid.com		082-553-0542

Birthdays – September / Verjaarsdae – September

07 Johann van den Bergh ZS6ETA
 21 Johan de Bruyn ZS6JHB
 27 Ryan Gibson ZS6GGR



22 Jan Volschenk ZR6JJV
 26 Graham Reid ZS6GJR

Please Note : If your Club fees are not paid up to date, birthday details cannot be displayed in Watts

Spouse's Birthdays – September

No Spouse's birthdays

Anniversaries / Herdenkings – September

28 Jan ZS6OB en Erika Pienaar

Lief en Leed / Joys and Sorrows

Jean de Villiers ZS6ARA het herstel van 'n erge griep. PARC wens Jean alle beterskap toe.
 Vincent ZS6BTY and Heather's daughter is recovering from surgery. PARC wishes her a speedy recovery.

Contests and Diary of Events – September 2015 / Kompetisies en Dagboek van Gebeure – September 2015 (UTC Times)

05	Russian RTTY WW Contest : 00h00 – 23h59
05 - 06	All Asian DX Contest, Phone : 00h00 – 24h00
05 – 06	RSGB SSB Field Day : 13h00 – 13h00
05 - 06	IARU Region 1 Field Day, SSB : 13h00 – 12h59
06	DARC 10-Meter Digital Contest : 11h00 – 17h00
12 – 13	WAE DX Contest, SSB : 00h00 – 23h59
19 - 20	SARL VHF/UHF Analogue/Digital Contest : 10h00 – 10h00
19	Amateur Radio in Action 2015 Symposium : Innovation Hub, Pretoria : 08h00 – 15h30
19 - 20	Scandinavian Activity Contest, CW : 12h00 – 12h00
26 - 27	CQ Worldwide DX Contest : 00h00 – 24h00

PARC SUBS / LEDEGELD FROM / VAN 30-06-2014

Bank	First National Bank	Ordinary Members / Gewone Lede : R150 Spouses / Pensioners : R50	Your call sign must appear as statement text!
Branch Code	25 20 45		
Account No	546 000 426 73		

**Please remit your subs in time to our Treasurer, or pay per transfer into the PARC account
 Betaal asb. u ledegelde betyds aan ons Tesourier, of betaal per oorplasing in die PARC rekening**

**Next PARC Flea market : Saturday 31st of October 2015 (from 8h00) before the AGM
 Please contact Almero DuPisani (ZS6LDP) for any enquiries**

**PARC Flea Market dates for 2016
 5th of March ; 28th of May ; 27th of August ; 5th of November
 Please contact Almero DuPisani (ZS6LDP) for any enquiries**

The 85th Annual General Meeting of the Pretoria Amateur Radio Club

The Annual General Meeting of the Pretoria Amateur Radio Club will take place on the 31st of October 2015, at the Pretoria Motor Club, Keuning Street, Silverton. This Meeting will take place after the flea market which will commence from 8h00. Please find below the proxy and nomination forms. This form will also be available in pdf format on the PARC website. **The AGM will be followed by a bring and braai. PARC will supply the fire and salads.** For any queries, please do contact the Secretary, Louis de Wet at 072-140-9893 or louis.zs6sk@gmail.com



85th ANNUAL GENERAL MEETING 85^{ste} ALGEMENE JAARVERGADERING Pretoria Amateur Radio Club



**Pretoria Old Motor Club
Keuning Str. Silverton**

Venue

Saturday 31 October 2015

Time : 11h00

Agenda : To be published

Plek

Saterdag 31 Oktober 2015

Tyd : 11h00

Agenda : Sal gepubliseer word

NB

Motions must be forwarded to the Secretary. Latest acceptance date 10 October 2015
Mosies moet gestuur word na die Sekretaris. Laatste indiening teen 10 Oktober 2015
Contact details on page 1 of WATTS / Kontakdetails op bladsy 1 van WATTS

PROXY Form (cut out) || VOLMAG Vorm (knip uit)

Only paid-up members may submit proxies || Slegs opbetaalde lede mag volmagte indien

I/Ekbeing ZS/R/U..... give/geeZS/R/U.....

Proxy to vote on my behalf at the 2015 PARC AGM

Volmag om namens my te stem tydens die 2015 PARK AJV **Geteken/Signed**.....

NOMINATION Form (cut out) || NOMINASIE Vorm (knip uit)

Committee Nominations must be in writing and signed by both the Proposer and Nominee and be handed in prior to the meeting at latest. Use the Nomination Form below. The Proposer and Nominee must both be paid-up members.

Komitee Nominasies moet skriftelik wees en deur beide die Voorsteller en Voorgestelde geteken word en moet op laaste voor die vergadering ingehandig word. Gebruik die Nominasievorm hieronder. Beide Voorsteller en Voorgestelde moet opbetaalde lede wees.

Proposer:

ZS

Signature:

Voorsteller:.....

ZR

Handtekening:.....

ZU

NOMINEE GENOMINEERDE	CALLSIGN ROEPSEIN	NOMINATION ACCEPTED NOMINASIE AANVAAR
1		
2		
3		
4		

Imperial Toyota Tshwane Motor Rally : 14 – 15 Augustus 2015

Die Imperial Toyota Tshwane Motor Rally, aangebied tydens 14 tot 15 Augustus 2015 rondom Cullinan en Bronkhorstspuit, het gesorg vir groot aksie en opwinding. Die aksieskote onder is ter vergunning van Andre Laubscher van www.runridedive.com. Videomateriaal van die aksie kan op Youtube gesien word by die volgende skakels: <https://www.youtube.com/watch?v=zgSbmyihp54> / https://youtu.be/44_2EUe-Hv0



Lede van PARC het weereens 'n waardevolle ondersteunings rol tydens die tydren gespeel, met beheer behartig deur Graham en Joey ZS6GJR. Mobil 1 was Tony ZS6CRO, terwyl Kar 0 en 00 onderskeidelik deur Willem ZS6JNB en Menno ZS6AGC behartig is. Sweep is deur David ZU6DB behartig.

Daar was 'n totaal van 10 trajekte tydens die tydren, en die veldstasies was soos volg tydens Dag 1 (Cullinan): SS1 & SS3: Pieter ZS6CN en Pierre ZS6PJH ; SS2 & SS4: Johan ZS6JHB en Louis ZS6SK en seun Eugene.

Tydens Dag 2 in die Bronkhorstspruit omgewing was die veldstasies soos volg: SS5 & SS8: Pieter ZS6PAM en Willie ZR6WGR ; SS6 & SS9: Johan ZS6JHB en Louis ZS6SK en Eugene ; SS7 & SS10: Pieter ZS6CN en Pierre ZS6PJH.

Natuurlik 'n spesiale woord van dank aan Annatjie en Irene, die lv's van Pieter ZS6CN en Pieter ZS6PAM vir hulle ondersteuning by elke tydren. PARC dank almal betrokke hartlik vir hul deelname.



Ham Radio Snippets by Johan ZS6JHB

I always thought ham radio is exclusively adult guy geeks' domain until last weekend when I met a family of ham radio fans. Their kids got their ham radio license when they were six years old. Wow. An estimated six million people throughout the world are regularly involved with amateur radio. Why amateur radio is called "ham radio"? ARRL (The National Association for Amateur Radio) explained: "*Ham*: a poor operator. A 'plug.'" Out of misunderstanding, amateur radio operators pick it up and wore it with pride. Over the years, the original meaning of "ham" has completely disappeared.

73'

Anonymous

The "DX Code of Conduct"

Operators are urged to support it:

- * I will listen, and listen, and then listen again before calling. *
- * I will only call if I can copy the DX station properly. *
- * I will not trust the DX cluster and will be sure of the DX station's call sign before calling. *
- * I will not interfere with the DX station nor anyone calling. *
- * I will never tune up on the DX frequency or in the QS X slot. *
- * I will wait for the DX station to end a contact before I call. *
- * I will always send my full call sign. *
- * I will call and then listen for a reasonable interval. I will not call continuously. *
- * I will not transmit when the DX operator calls another call sign, not mine. *
- * I will not transmit when the DX operator queries a call sign not like mine. *
- * I will not transmit when the DX station requests geographic areas other than mine. *
- * When the DX operator calls me, I will not repeat my call sign unless I think he has copied it incorrectly. *
- * I will be thankful if and when I do make a contact. *
- * I will respect my fellow radio amateurs and conduct myself so as to earn their respect *

Competition News

Preliminary results of the South African Radio League HF Phone competition were recently released. The competition committee received 34 log-sheets for this competition which took place on Sunday, the 2nd of August. There were no multi-operator stations.

The results were as follows:

- 1st : Hans Kappetijn, ZS6KR, 144 points
- 2nd : Romeo Nardini, ZS6ARQ, 137 points
- 3rd : Pam Momberg, ZS6APT, 132 points

The highest points on a single band:

- 1st: Hans Kappetijn, ZS6KR, 106 points on 40 meters.

Club Competition:

- 1st : Pretoria Amateur Radio Club, 402 points
- 2nd: West Rand Amateur Radio Club, 351 points

[Congratulations to Hans and everybody who participated!](#)

The Collins Balun : by Hans ZS6KR



This balun was brought to me by Julian ZS6OAU and we ruminated over it for a while how it worked as it was originally supplied with his TET HB36 Yagi capable of some 2kW PEP.

Researching Prof Google bought the answer in the form of an article by William Orr W6SAI published in CQ Nov. 1993:

<http://www.nonstopsystems.com/radio/pdf-ant/balun-orr.pdf>

Air core baluns can be made cheaply and are not subject to core saturation that can

cause unpleasant results. An example below from the site

http://www.qsl.net/iz7ath/web/02_brew/11_balun/english/pag07_eng.htm

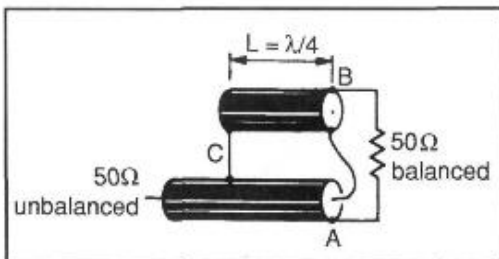


Fig. 1- Parallel-conductor type balun with 1:1 impedance transfer.

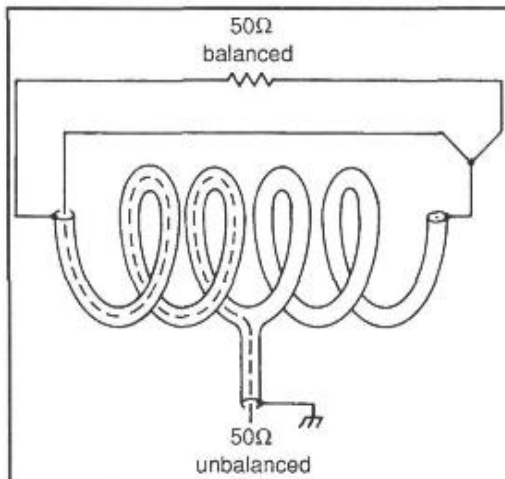
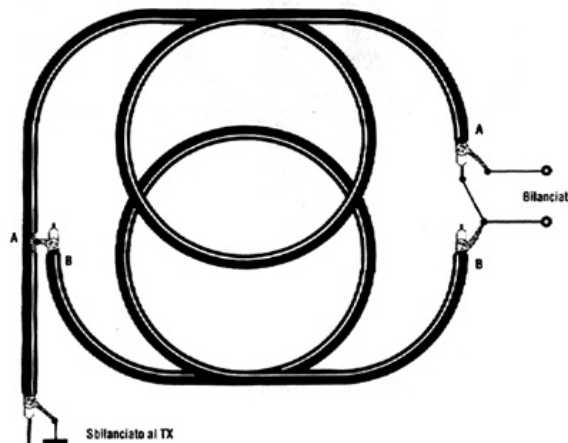


Fig. 2- Broad-band coax balun with 1:1 impedance transformation. Center conductor of right-hand coil is unused.



can do a range of 3-28 MHz, using 160cm of coax cable for each side with 7-8 turns on 11cm diameter.

(This small diameter probably applies to RG58)

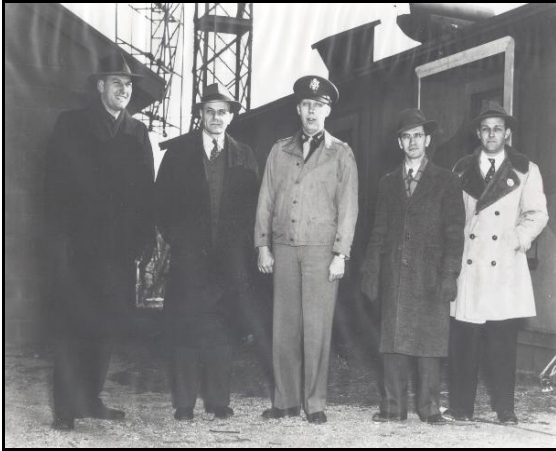
The TET balun above uses thicker coax (not RG213) and has 3½ turns each side with a wound diameter of 120mm and measured less than 1,5 SWR between 3,0 MHz and way beyond 30 MHz with a 50 ohm resistive termination.

Commercial offerings such as the TET-EMTRON

EB-11 are also available.

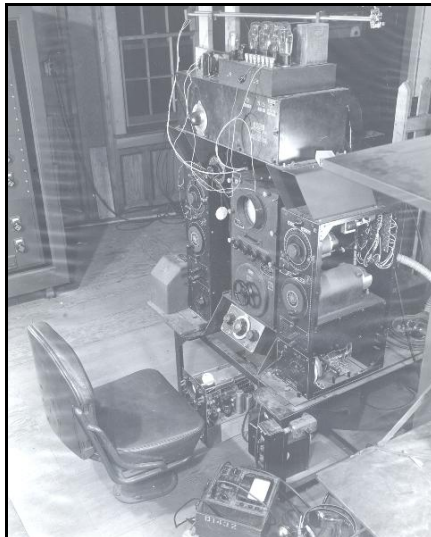
Radar echoes form the Moon : Project Diana and EME

After the second world war, the U.S Army Signal Corps was asked in 1946 by the United States military leaders to research the capabilities of long-range radar. The purpose of this investigation was to determine if long-range radar could be used to detect incoming ballistic missiles, such as the German V-1 and V-2 rockets which had devastating effects on London during the war.



Project Diana Staff: Jacob Mofenson, Harold D. Webb, John H. DeWitt, Jr., E. King Stodola and Herbert Kaufman

This task was handed over to Colonel John DeWitt and his colleagues at the Evans Signal Laboratory in Belmar, New Jersey. The primary aim of the investigation was to determine if radar waves could penetrate the ionosphere. This was crucial, as long-range missiles arced into the ionosphere on route to their targets. The best way was to bounce a signal off an object outside the earth's ionosphere strong enough to return a signal back to the Earth again. As an amateur astronomer, DeWitt selected the Moon as a distant target, and gave the program the name Project Diana, which is the Greek goddess of the Moon.



The transmitter, which was not specifically designed for this project, was a modified SCR-271 from World War II, which provided 3 kilowatts at 111.5 Mhz in 1/4 - second pulses. The output of the transmitter was fed via a 250Ω open-wire transmission line to the antenna array, which contained 64 dipoles horizontally polarized, placed on a 100 ft tower. The dipoles were placed in front of a reflector, which provided a gain of 24dB.

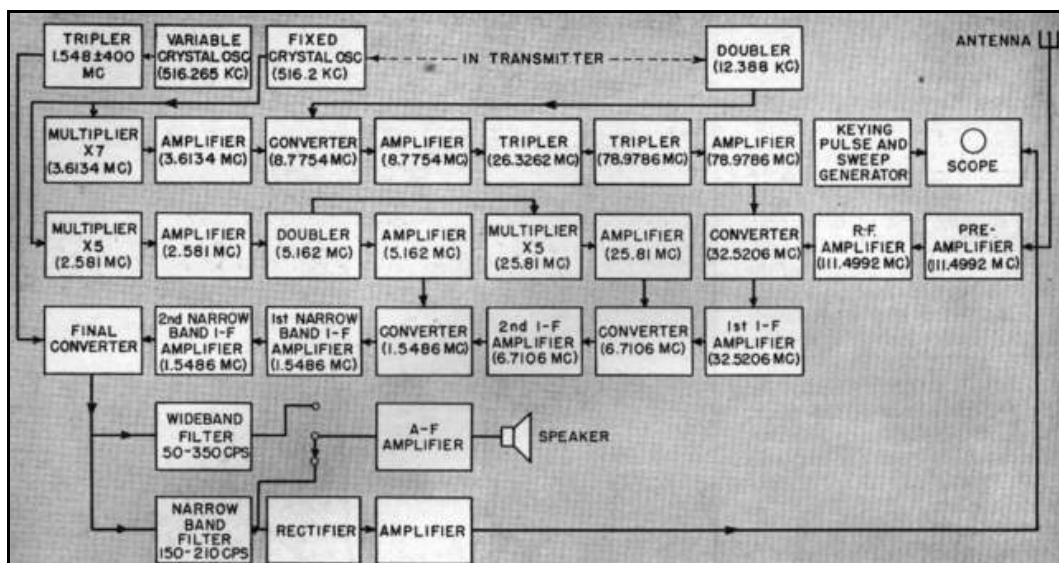
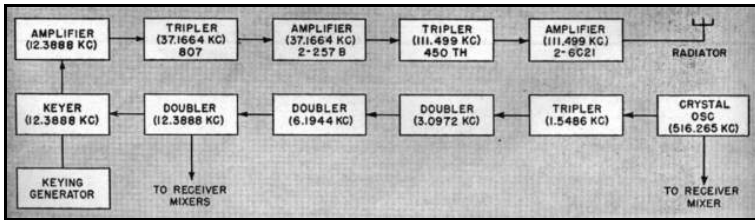
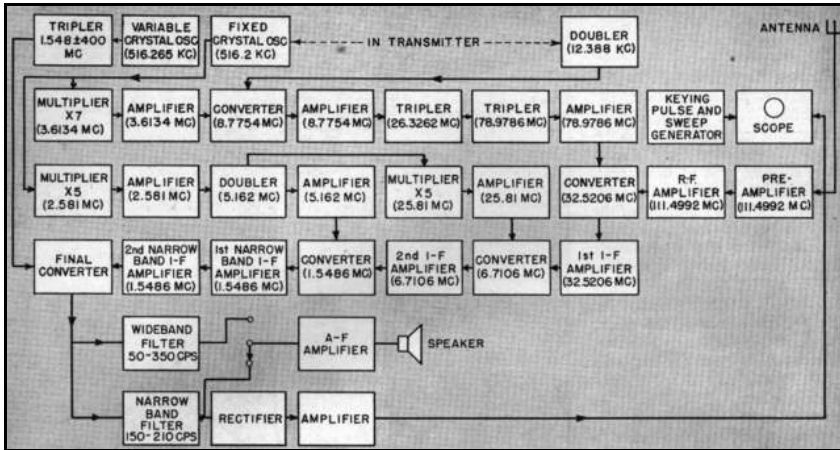


Diagram of the complete transmitting, receiving and indicating system of Project Diana

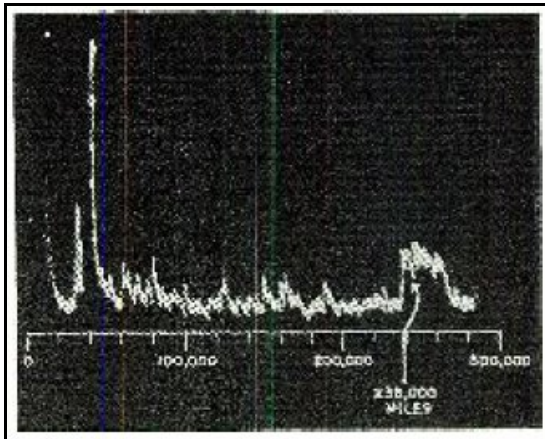


The transmitter was crystal controlled, and derived its final RF of 111.5 MHz after a series of frequency multiplications from a fundamental crystal oscillator frequency of 516.2 KHz.

Keying was accomplished by causing a low-level multiplier stage to conduct by driving its cathode negative for the duration of the transmitted pulse. Initially, keying was performed mechanically by a relay, but was later replaced by an electronic kever with a pulse width controllable between 0.02 - 0.2 seconds.



The receiver was frequency controlled, and contained four mixer stages which heterodyne the RF signal to a final intermediate frequency of 180 Hz. A high degree of frequency stability was achieved, due to the first three injection frequency voltages as well as the final radio frequency being derived from multiples of a common oscillator. This high degree of stability was essential to permit tuning the highly selective receiver to the frequency of the echo signal.



During transmissions, signals reflected from the Moon were received about 2.5 seconds later, the time required for the signals to make the 768 000 kilometer round trip. Before each daily trial, calculations had to be made to enable the receiver to compensate for the Doppler shift in frequency of the reflected signal due to the Moon's orbital motion relative to the Earth's surface which varied daily. On the 10th of January 1946, the first successful echo detection was achieved by John H. DeWitt and E. King Stodola. The picture on the left shows the radar signal, with the large pulse left being the transmitted signal, and the small pulse right the return signal from the Moon.



This project illustrated using the Moon as a passive reflector to transmit radio signals from one point on the Earth to another, around the curve of the Earth. This "Moonbounce", or Earth-Moon-Earth path has been used in a number of communication systems, of which the first was the secret US military espionage PAMOR (Passive Moon Relay) program in 1950. This system eavesdropped on Soviet Russian military radio communication by picking up stray signal reflected from the Moon.

With the advent of communication satellites in the early 1960's, Moonbounce communications were abandoned by the military. However since, Radio Amateurs realised the advantages of using EME and is still using this method to achieve long distance radio contacts.

Ref : GOOTÉE, T. 1946. Radar reaches for the Moon. Radio News. April 1946. Vol 35. No 4.
www.americanradiohistory.com
http://ethw.org/Project_Diana/
<http://www.campevans.org/CE/html/diamof.html>

Amateur Radio in Action Symposium : Pretoria : 19 September 2015

The next Amateur Radio in Action symposium will be presented at the Innovation Hub, Pretoria, on the 19th of September. The following topics will be discussed at this Symposium:

Why IARU is important for Amateur Radio's future : Fritz Sutherland ZS6SF

Building and Inverted V for Near Vertical Incidence Sky Wave Propagation : Vincent Harrison ZS6BTY

Constructing a Frequency Counter – 2015 ARiA project (Kit available) : Frik Wolff ZS6FZ

Space Weather and it's Impact : Mpho Tshisaphungo : SANSA Space Sciences

Amateur Radio is also for the young – my experience at the IARU YOTA 2015 : Koos Fick ZR6KF

Practical mobile radio installation – What to look for and what to do : Riaan Greeff ZS4PR

Engaging Newly Licenced Radio Amateurs Project : Etienne Naude ZS6EFN

Kletsious : Why a SA CubeSAT : SA AMSAT Team

More information on the Programme and fees for the ARiA symposiums can be obtained at the following web address: <http://www.amateurradio.org.za/ARiA2015%20Gauteng.pdf> . The SARL website can also be consulted for information on booking forms.

Due to popular demand, it has been decided to expand the frequency counter kit by including a frequency pre-scaler. Provision for the chip is already on the board. The chip can be ordered as an optional extra item at a cost of R100 when ordered with the main kit.

PARC Shirts and Caps for sale

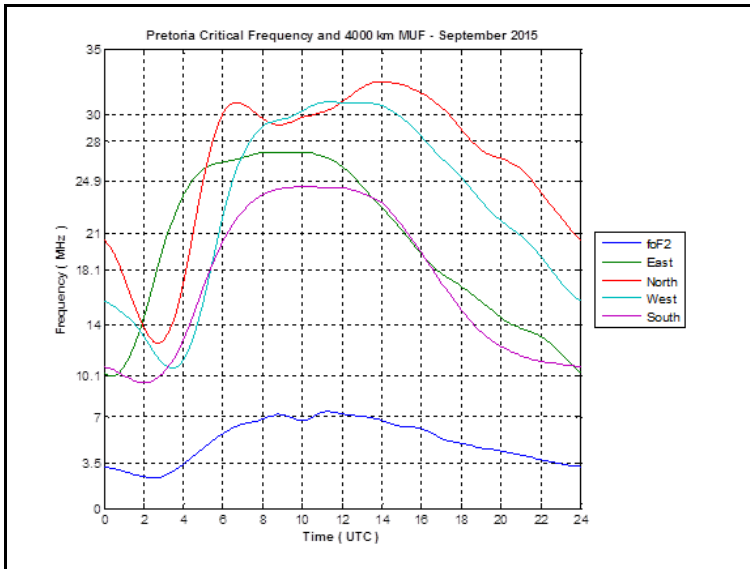


PARC shirts, hats and caps are again available, and can be ordered directly from Joey Reid.

Joey's contact details are as follows: Cell: 083-252-7912 ; Phone: 012-667-2720 ; Email : jreid@wol.co.za

Bank payments can be made to: JD Enterprises ; Capitec Bank ; Acc No : 1273634991 ; Branch No : 470010

Item Description	Unit Price (R)
Two tone bush shirt Navy/Stone : Small / Medium / Large	175-99
Two tone bush shirt Navy/Stone : X – Large / 2X – Large	197-99
Two tone bush shirt Navy/Stone : 3X – Large / 4X – Large	225-99
Two tone bush shirt Navy/Stone : 5X – Large	238-99
Embroidery : Logo on top left pocket	25-00
Name eg: "JOHAN" on left pocket	20-00
Call sign eg: "ZSB6GP" on right top pocket	20-00
Out door hat	45-99
Logo front	25-00
Name eg: Joe	20-00
Call sign at back	20-00
Peek cap	25-00
Logo front	25-00
Name eg: Joe	20-00
Call sign at back	20-00



Long Term HF Propagation for September 2015

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 F-layer frequency for short range communications.

See also the Propagation tab at <http://www.parc.org.za/>

Courtesy Vincent ZS6BTY

C/O NELSPOORT & 801 MALMESBURY STR, WINGATE PARK, PRETORIA [S25.49.36 & E28.16.07]

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- Contact Hans at 012-333-2612 or 072-204-3991



Ivan Jancuska OK1LL, an honorary member of PARC, known as ZS6CCW when residing in South Africa, has achieved first place during the World-Wide DX Contest as a single operator using CW on 15 meters. Although currently residing the Czech Republic, PARC hereby congratulates Ivan on his remarkable achievement.

Idees vol Vrees (ingestuur deur Hans ZS6KR)

Om taai biltong te eet is nie 'n straf nie... dis 'n sening
As jy 'n skroewedraaiër verkeerd vashou, kan dinge lelik uitdraai...
Rafael Nadal slaan 'n tennisbal ver. Maar Roger slaan hom baie Federer.
Ek was jare lank in die boubedryf... Maar toe het ek 'n kompleks ontwikkel en die plot verloor! 😊