



WATTS 2018-11

Year 88 + 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> zs6pta@zs6pta.org.za



Bulletins : 145.725 MHz : Sundays from 08h45 / Sondag vanaf 08h45
 Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
 and Echolink. Activated frequencies are announced prior to bulletins
Swoopshop : 2m and 7.066 MHz live on-air after bulletins
 Bulletin repeats on Mondays / herhalings op Maandae : 2m 19h45



Theo Bresler ZS6TVB het tydens die 2018 CQ WPX Wereldwye Kompetisie 'n total van 853 688 punte aangeteken, en het sodoende die volgende posisies behaal: #1 in Suid-Afrika ; #1 in Afrika en #4 Wereldwyd. Graag wens PARK Theo van harte geluk met sy besondere prestasie en al die beste vir sy toekomstige deelnames in internasionale kompetisies. Meer op bladsye 5 tot 8

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Club Meetings / Klub Vergaderings

Club Committee Meeting :

The next Committee Meeting will be on Thursday, the 15th of November from 18h30 at the Waterlab Offices.

PARC Committee Members : 2018 – 2019 / PARK Komiteede : 2018 - 2019

Name & Callsign	Portfolio/s	Email Address	Tel No	Mobile No
Louis de Wet ZS6SK	Chairman, Watts, Club History	louis.zs6sk@gmail.com	012-349-1044	072-140-9893
Graham Reid ZS6GJR	Vice Chairman, Treasurer, Website	greid@wol.co.za	012-667-2720	083-701-0511
Etienne Naude ZS6EFN	SARL Liaison, Bulletin Coordinator	etienne@afgrid.com	012-661-6745	082-553-0542
Irene Myburgh ZS6IEA	Club Secretary	irene@srsa.gov.za	012-304-5109	082-462-6001
Johan de Bruyn ZS6JHB	Rallies, Repeaters & Membership	zs6jhb@gmail.com	012-803-9418	079-333-4107
John Minter ZS6LED	Technical & RAE Training	john.minter.za@gmail.com	012-349-0019	083-291-5422

PARC Co-opted Members : 2018 – 2019 / PARK Ge-koopteerde Lede : 2018 - 2019

Name & Callsign	Portfolio/s	Email Address	Tel No	Mobile No
Alméro Du Pisani ZS6LDP	Flea-markets	almero.dupisani@up.ac.za	012-420-3779	083-938-8955
Tony Crowder ZS6CRO	Auditor	tcrowder@telkomsa.net	011-672-3311	
Nic Louw ZS6NWL	Youth Development	nic.louw@telkomsa.net		083-596-1026
Whitey Joubert ZS6JJJ	Social & Competitions	zs6jjj@gmail.com	012-993-2267	072-120-4516
Pierre Holtzhausen ZS6PJH	Competitions	zs6pjh@gmail.com		082-575-5799
Pieter Myburgh ZS6PAM	Repeaters	wooden@mweb.co.za		076-140-7562

Birthdays and Anniversaries / Verjaarsdae en Huweliks Herdenkings

Member's Birthdays November 2018 / Lede Verjaarsdae – November 2018

06 Sollie Conradie ZS6SV	16 Pierre Duminy ZS6FPS
12 Fritz Sutherland ZS6SF	16 Gideon van der Merwe ZS6GJV
16 Vlasta Jancuskova ZS6-2501	25 Tony Crowder ZS6CRO

Member's Spouses November 2018 / Lede Gades November 2018

11 Peggy, Spouse of Ed Willers ZS6UT

Anniversaries November / Herdenkings – November

14 Sylvia en Tjerk Lammers ZS6P (Erelid)
26 Marike Roux ZS6MRX en Andre Roux ZS6ARX
28 Maria and Jyri Hamalainen ZR5AAE
29 Moira en Hendrik Ferreira ZS6BUH

Member's Birthdays December 2018 / Lede Verjaarsdae – Desember 2018

01 Pieter Fourie ZS6CN	15 Alméro Du Pisani ZS6LDP
07 Tim Meyer ZS6TIM	27 Pierre Britz ZR6ADZ
07 Hansie Meyer ZS6AIK	28 Allan De Souza ZS6AVC
08 Nielmari Wilson ZS6NMW	30 Hans van de Groenendaal ZS6AKV
08 Hans Kappetijn ZS6KR (Erelid)	

Spouse's December 2018 / Gades Desember 2018

06 Sylvia, gade van Tjerk Lammers (Erelid) ZS6P
12 Elsa, gade van Fritz Sutherland ZS6SF
23 Dienkie, gade van Pierre Britz ZR6ADZ

Anniversaries December / Herdenkings – Desember

08 Avida en Theo Bresler ZS6TVB
29 Estelle en Francois Duminy ZS6FPS

Lief en Leed / Joys and Sorrows

Ons het verneem dat Theo Bresler ZS6TVB sy enkel gebreek het toe hy van 'n leer afgeval het. Ons wens Theo sterkte toe met die operasie en spoedige herstel.
Johan de Bruyn ZS6JHB het tydens die afgelope naweek se tydren siek geword. Ons wens hom spoedige herstel.

In the December Watts / In die Desember Watts

- Redefining the Ampere using single-atom electron pumps
- The revised International System of Units (SI) and the change to Quantum Standards with specific focus on the Ampere and Kelvin
- Report back on the Annual General Meeting of the Antique Wireless Association of South Africa

PARC Membership Fees / PARK Ledegelde

During the 2018 AGM, the decision was made that Club Fees would not be increased for the financial year. Club Fees therefore remain at R160 for Ordinary Members, and R60 for Pensioners and Spouse. Gedurende die 2018 AJV, die besluit is geneem dat Klub Ledegelde nie verhoog sal word nie. Dus bly die gelde op R160 vir Gewone Lede, en R60 vir Pensionarisse en Gade.

PARC SUBS : PARK LEDEGELD : FROM / VANAF : 30-06-2018

Bank	First National Bank	Ordinary Members / Gewone Lede : R160 Spouses / Pensioners : R60	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 oorpasing in die PARC rekening			

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

PARC Bulletin Roster / PARK Bulletin Rooster

PARC Bulletins are presented on Sunday mornings at approximately 08h45, after the SARL Bulletins in English and Afrikaans, from 08h15. The Bulletin Presenters for the following two months are presented below. Please do contact the applicable presenter beforehand if you wish to make a contribution to the Bulletin. PARC Bulletins are broadcast on the 2 meter repeater on 145.725 MHz, and 70 cm on 438.025 MHz. Relays are done on 7.060 MHz by Hans Kappetijn ZS6KR and on Echolink by Johan Lehman ZS6JPL. A re-broadcast of the Bulletin is done the following Monday evening at 19h45 by Hans ZS6KR.

PARK Bulletins word op Sondag oggende aangebied om 08h45, na die SARL Bulletins in Engels en Afrikaans, vanaf 08h15. The Bulletin aanbieders vir die volgende twee maande word onder aangedui. Kontak gerus die toepaslike Bulletin leser indien u 'n bydrae tot die Bulletin wil maak. PARK Bulletins word uitgesaai op die 2 meter Herhaler op 145.725 MHz, en 70cm op 438.205 MHz. Herleidings word gedoen op 7.060 MHz deur Hans Kappetijn ZS6KR, en op Echolink deur Johan Lehman ZS6JPL. 'n Heruitsending van die Bulletin geskied die opvolgende Maandag aand om 19h45 wat behartig word deur Hans ZS6KR.

PARC Bulletin Presenters : September - December 2018

Date	Presenter	Date	Presenter
09 September 2018	Johan de Bruyn ZS6JHB	11 November 2018	Louis de Wet ZS6SK
16 September 2018	Louis de Wet ZS6SK	18 November 2018	Etienne Naude ZS6EFN
23 September 2018	Etienne Naude ZS6EFN	25 November 2018	Alméro Du Pisani ZS6LDP
30 September 2018	Alméro Du Pisani ZS6LDP	02 December 2018	Johan de Bruyn ZS6JHB
07 October 2018	Johan de Bruyn ZS6JHB	09 December 2018	Louis de Wet ZS6SK
14 October 2018	Louis de Wet ZS6SK	16 December 2018	Etienne Naude ZS6EFN
21 October 2018	Etienne Naude ZS6EFN	23 December 2018	Alméro Du Pisani ZS6LDP
28 October 2018	Alméro Du Pisani ZS6LDP	30 December 2018	Johan de Bruyn ZS6JHB
04 November 2018	Johan de Bruyn ZS6JHB	06 January 2019	Louis de Wet ZS6SK

PARC Fleamarkets / PARK Vlooiemarkte

The last flea market for 2018 was held on the 27th of October. The new list for 2019 will be published soon in Watts and presented on the PARC bulletins Sunday mornings.

Die laaste snuffelmark vir 2018 is gehou op die 27^{ste} Oktober. Die nuwe lys vir 2019 sal binnekort in Watts gepubliseer word en aangebied word op die PARK bulletins Sondag oggende.

To book a table, please do contact: / Om 'n tafel te bespreek, kontak gerus:
Alméro Du Pisani ZS6LDP at 083-938-8955 or almero.dupisani@up.ac.za

Diary of Contests & Events / Dagboek van Kompetisies en Gebeure

Contests and Events - November 2018 / Kompetisies en Gebeure - November 2018 (UTC Times)	
03	RADAR Challenge
03 - 04	Ukrainian DX Contest: 12h00Z - 12h00Z
10 - 11	WAE DX Contest, RTTY: 00h00Z - 23h59Z
10 - 11	OK/OM DX Contest, CW: 12h00Z - 12h00Z
10 - 11	SARL VHF/UHF Analogue Contest: 10h00 - 10h00
12	RSGB 80m Autumn Series, Data: 20h00Z - 21h30Z
17	RSGB 2 nd 1.8m Contest, CW: 19h00Z - 23h00Z
17 - 18	SARL Field Day Contest: 10h00 - 10h00
21	RSGB 80m Autumn Series, SSB: 20h00Z - 21h30Z
24	SARL Newbie Sprint
24 - 25	ARRL EME Contest: 00h00Z - 23h59Z
24 - 25	CQ World Wide DX CW Contest: 00h00Z - 24h00Z
29	RSGB 80m Autumn Series, CW: 20h00Z - 21h30Z
Contests and Events - December 2018 / Kompetisies en Gebeure - Desember 2018 (UTC Times)	
01	Start of Yota Month
08 - 10	ARRL 10-Meter Contest: 00h00Z - 24h00Z
08 - 09	International Naval Contest: 16h00Z - 15h59Z
14	Russian 160-Meter Contest: 20h00Z - 24h00Z
15	OK DX RTTY Contest: 00h00Z - 24h00Z
15 - 16	Croatian CW Contest: 14h00Z - 14h00Z
31	End of Yota Month
More information can be obtained from the SARL website, as well as the WA7BNM contest calendar at the following website: http://hornucopia.com	

Antique Wireless Association of South Africa : Notice of Annual General Meeting

Notice is hereby given of the 2018 Annual General Meeting of the Antique Wireless Association to be held on Saturday the 10th of November at the premises of the SAIEE, Observatory, Johannesburg.

There will be a flea-market and open display, as well as access to the SAIEE museum.

Time will be from 9h00 till 15h00, with the AGM held at approximately 10h00; with the flea-market, braai facilities and eyeball QSO afterwards. Bring along all your valuable junk that you wish to dispose of at the flea-market.

The Radio Shack will on air from 8h30 running the AWA SSB net.

Should you wish to bring your own meat and refreshments, please feel free to do so, otherwise meat packs and cold drinks will be available for sale. Please let Andy Cairns ZS6ADY know if you would be interested in a meat pack, for planning purposes. Andy can be contacted at andyzs6ady@gmail.com.

Tickets for the valve amplifier book will be available before the AGM, the draw will take place at the end of the AGM.

We look forward in seeing many of you there.

Theo Bresler ZS6TVB : World Wide WPX Contest

In 2016 Watts reported that Theo Bresler ZS6TVB participated in the CQWW competition where he achieved the 16th position worldwide. During this competition he scored 155 530 points with 543 QSO's, 28 zones and 75 countries worked. In 2017 he could unfortunately not participate as his antennas were not ready. However, in 2018 he came back with a vengeance, receiving the certificate below, showing a total score of 853 688 points, achieving positions #1 in South Africa, #1 in Africa and #4 worldwide! To achieve these remarkable results, he had to make 1413 QSO's, work 30 zones and 103 countries! Pretoria Amateur Radio sincerely congratulates Theo with his remarkable achievement and wishes him all the best with his future participation in the Single Operator, Single Band, 15m High Power category in the CQ World Wide WPX Contests.



Intussen was Theo besig om voor te berei vir CQWW kompetisie wat gedurende die naweek van 27 - 28 Oktober 2018 plaasgevind het. Vir die doel het hy 4 weke geneem om sy radiomas te laat sak en die LJ-155CA Hy-Gain Long John Antenna te bou. Theo het benadruk dat hy nie hierdie kompetisies kan aanpak sonder die hulp van sy mede radio amateurs nie, spesifiek Pierre Holtzhausen ZS6PJH en Pieter Human ZS6PA wat etlike sondae hul tyd opgeoffer het om hom by te staan om die installering van die antenna te verrig. Theo het goedgunstigheid fotos aan Watts beskikbaar gestel en kan gesien word op die opeenvolgende bladsye. As u meer van die fotos wil besigtig, besoek gerus Theo se webwerf by <https://flickr.com/photos/zs6tvb/albums/72157699393749172>.



Enkele fotos van die konstruksieproses van Theo se LJ-155CA Hy-Gain Long John Yagi Antenna, asook a paar naby skote. Pierre ZS6PJH en Pieter ZS6PA hard besig om Theo by te staan met die montering van die antenna op die radiomas.



Met die antenna gemonteer, en veiligheid altyd belangrik, soos Theo demonstreer, kon daar oorgegaan word met die toets van die antenna, terwyl Pieter intussen die braaivleis vuur aansteek vir die honger manne.

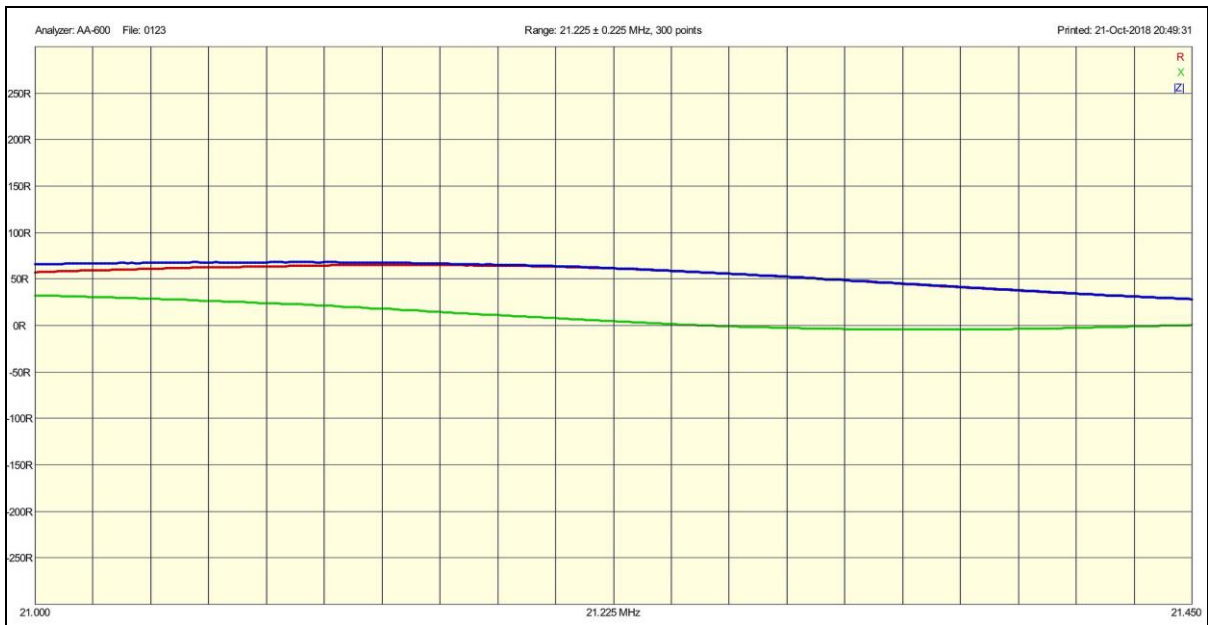


Antenna measurements were conducted using Theo's RigExpert AA-600 Antenna Analyzer. On the following page, results obtained are presented in three graphs:

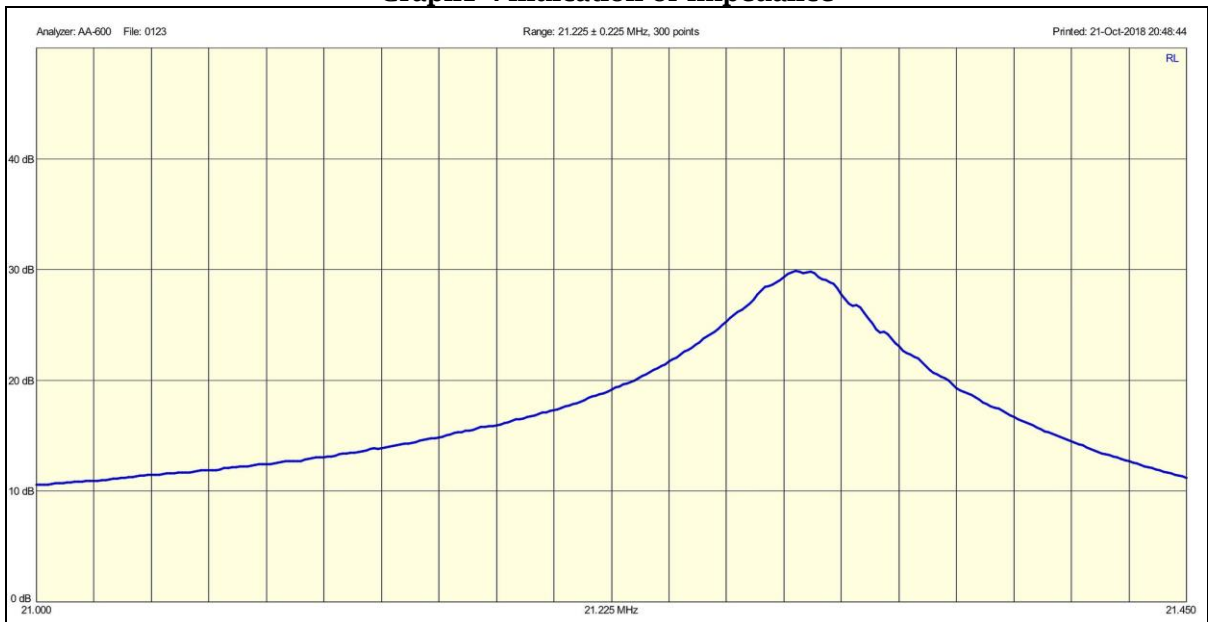
Graph 1: Indication of the impedance of the antenna using the equation $Z = R + jX$.

Graph 2: Return Loss (RL) - the inverse of SWR, which effectively indicates SWR, but in another way. In commercial RF installations Return Loss is used exclusively. Radio Amateurs prefer using SWR to indicate antenna resonance effectively.

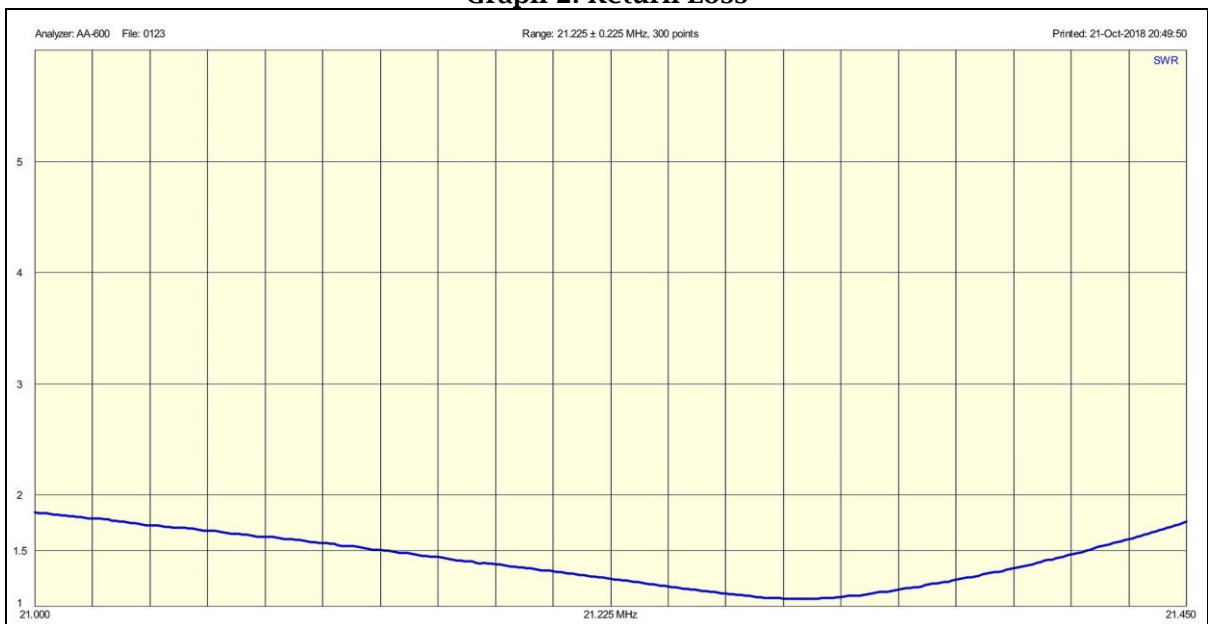
Graph 3: Standard Wave Ratio (SWR), with SWR on the vertical axis and frequency on the horizontal axis.



Graph1 : Indication of Impedance



Graph 2: Return Loss



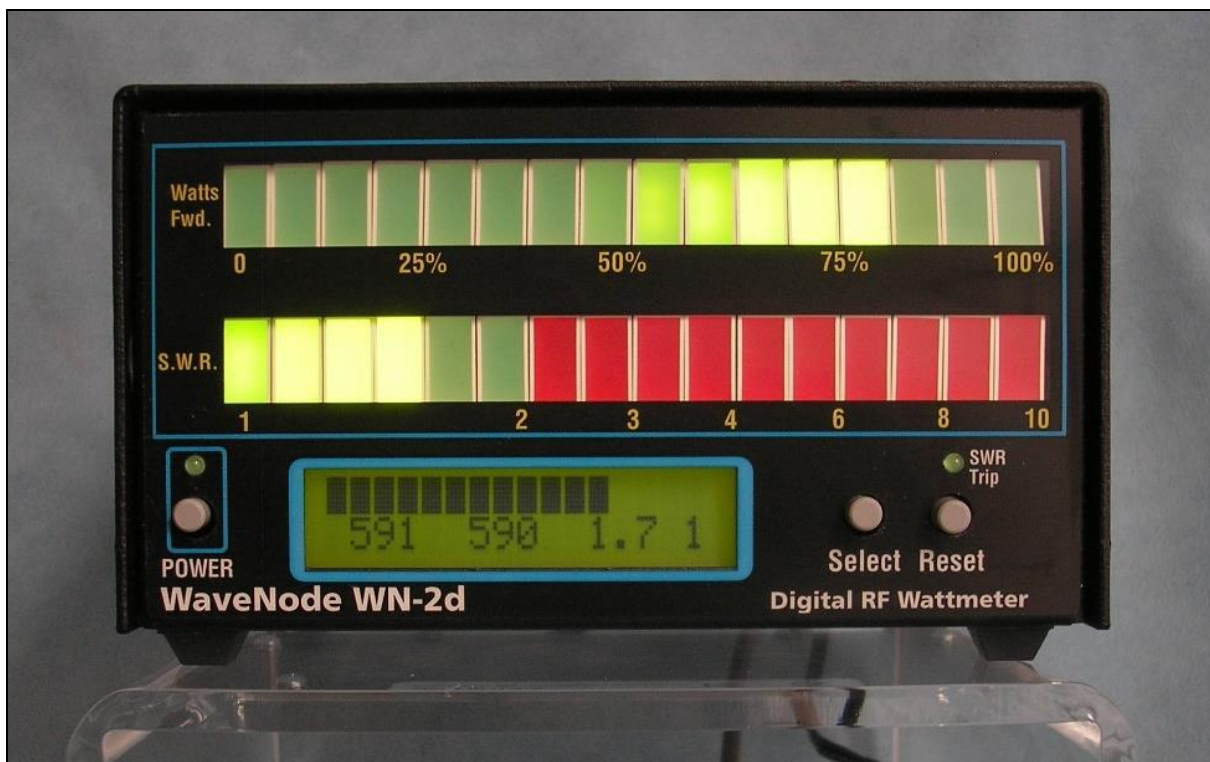
Graph 3: Standard Wave Ratio

Wave Node Digital RF Wattmeter Product Review : Vernon Fryer ZS6AIG

I recently started getting interested in 70cm and 23cm and could not find any SWR equipment for 70cm and 23cm, already having a shack full of SWR/Watt meters covering all the HF and VHF bands, the thought of having to invest in more SWR/Watt meter did not work for me. The price of SHF band measuring equipment does not come cheap.

After some research and discussions with a few other hams I decided to acquire a Wave Node WN-2D with HF, VHF and SHF sensors capable of handling up to 2Kw on VHF and 8Kw on HF.

It was a breeze to set up and gives you the accuracy needed far beyond what you need from a SWR/Watt meter.



Front View with Peak power and S.W.R. LED bar graphs. Top bar graph displays peak power. The scale is user selectable for each of the four thru-line sensors installed. Bottom bar graph shows SWR on 1:1 -> 10:1 scale.

The WD-2D has various options of sensors to select:

- HF-1: 0-2,000 Watts (1.8-60 MHz.)
- LP-1: 0-60 Watts (1.8 -60 MHz.)
- 8KW: 0-8,000 Watts (1.8-40 MHz.)
- FM-1: 0-600 Watts (20-120 MHz.)
- AM-1: 0-2000 Watts (500 KHz-3.0 MHz.)
- L/M-1: 0-2000 Watts (100KHz-5 MHz)

- UHF-1: 0-300 Watts (120-470 MHz.)
- UHF-2KW: 0-2000 Watts (120-170 MHz.)
- UHF-220: 0-2000 Watts (200-275 MHz.)

UHF-70cm: 0-2000 Watts (400-470 MHz.)

- SHF-1: 0-150 Watts (500-750 MHz.)
- SHF-2: 0-150 Watts (750-950 MHz.)
- SHF-3: 0-150 Watts (950 MHz.-1300 MHz.)

The configuration I selected was HF-1, UHF-2Wk and the SHF-3 sensors and ordered an additional FM-1 to cover 6m.

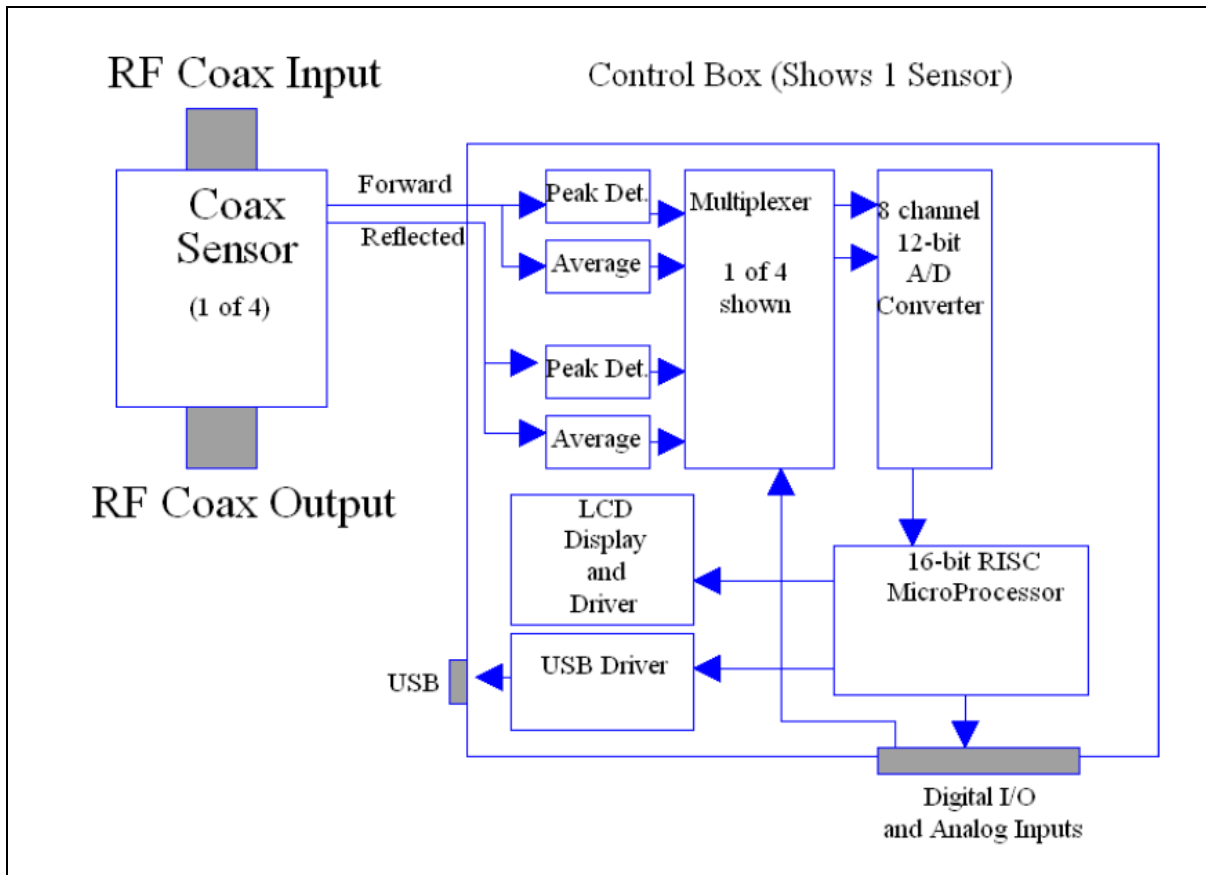


Rear View with Sensor Inputs, Auxiliary inputs, USB Interface and optional Yaesu rotator interface.

Most of the features make this more than a normal SWR/Watt meter but has some other useful functions and the software is easy to install and very user friendly:

- Simultaneous monitoring of RF power/SWR on two or four separate coax sensors.
- Calculates SWR, peak and average power for display on the built-in LCD display. Bar graph displays of peak power are shown when the RF power exceeds 2 watts.
- Direct USB computer interface on all products for Microsoft OS XP, 7, Vista, 8 and 10.
- 16-bit RISC microprocessor, 12-bit A/D converter, and precision peak/ average detection circuitry for each sensor.
- 40 Khz sampling of the RF envelope provides a digital Oscilloscope view of the modulation envelope
- Spectrum Analysis monitors the data content and bandwidth of the modulation speech or data stream. Monitor Intermodulation and splatter real-time as you operate.
- Additional monitoring circuitry is provided for station DC voltage/current.
- Four digital outputs allow monitoring and control with remote PC.

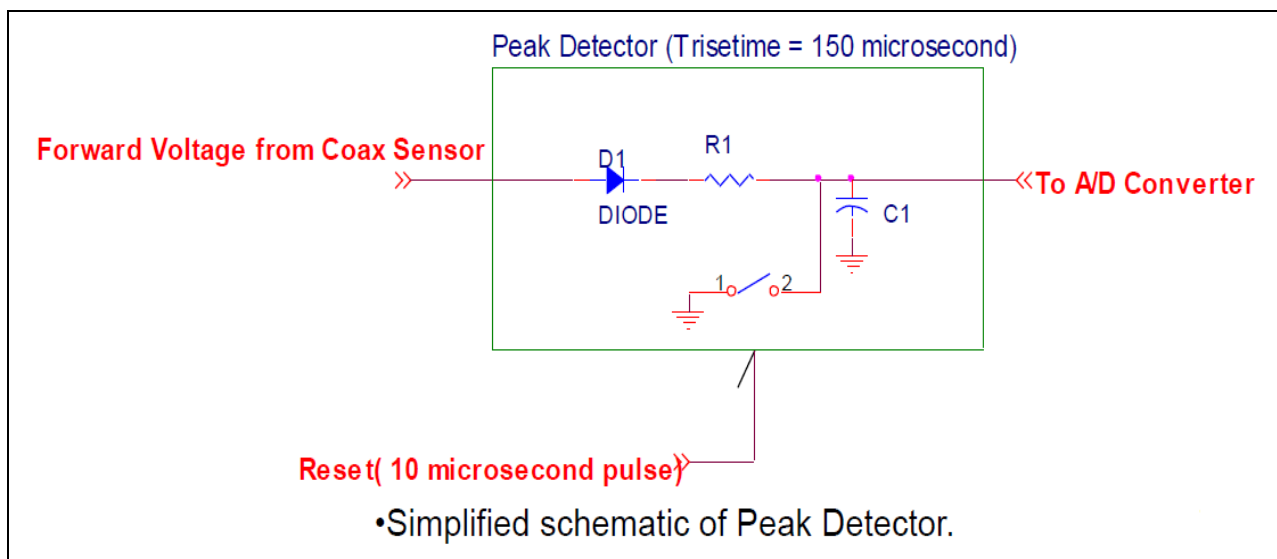
- Four additional analogue inputs allow real-time monitoring on the local LCD display or remotely through USB interconnect to a host PC
- Relay provided to trigger on excess SWR for equipment protection.
- All data viewing and control can be done locally or remotely via PC.



Sensing Block Diagram

Peak detection:

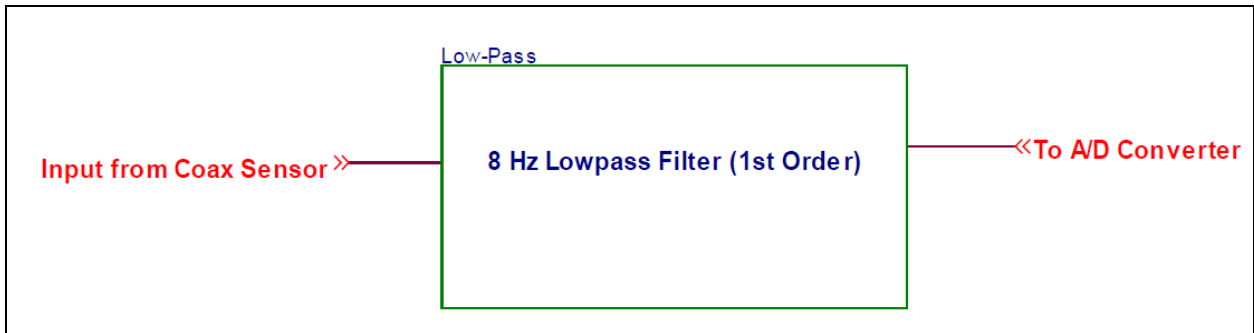
- Peak capture, conversion: Reset 20 times per second
- Each Sample is Independent of the Previous.



Average Power Measurement

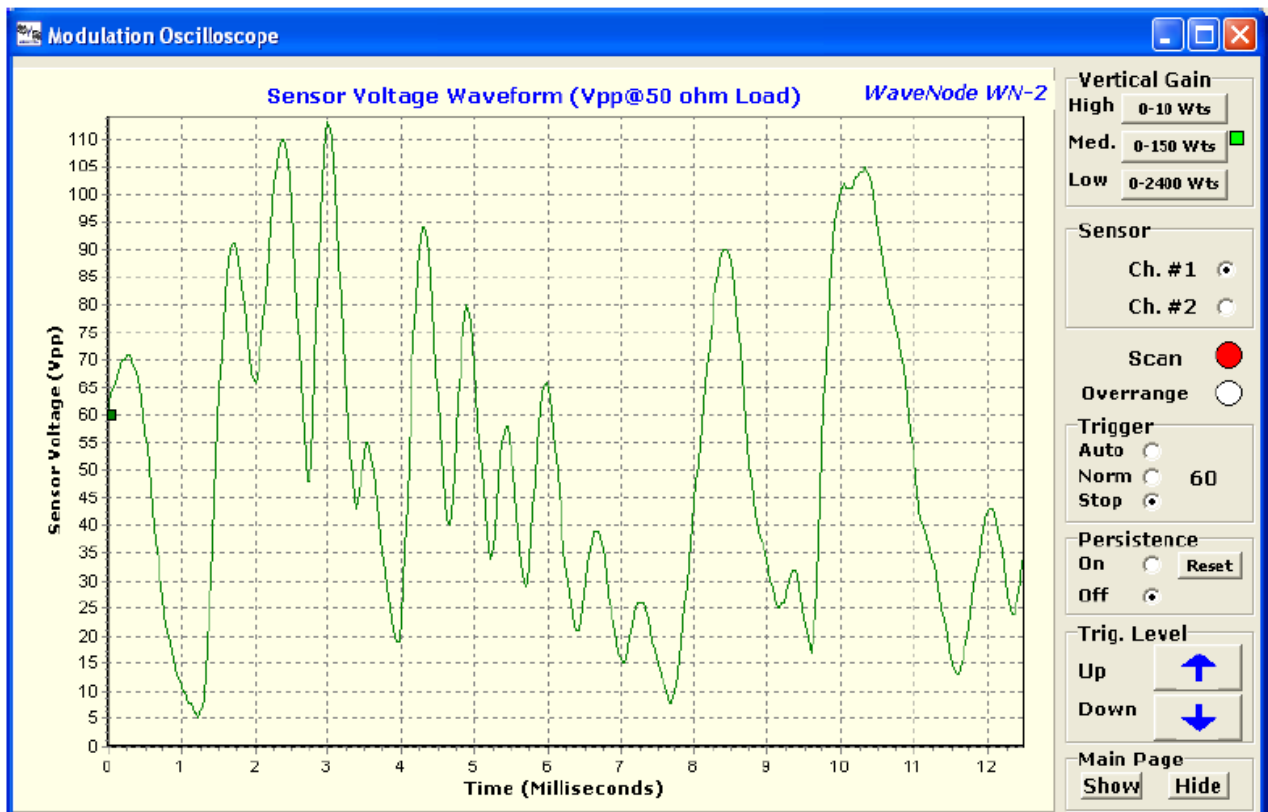
1. 8 Hz Low pass filter.
- 2, 20 Sample/second fs.

Basic Rule: Don't violate Nyquist sampling criteria to obtain accurate results.



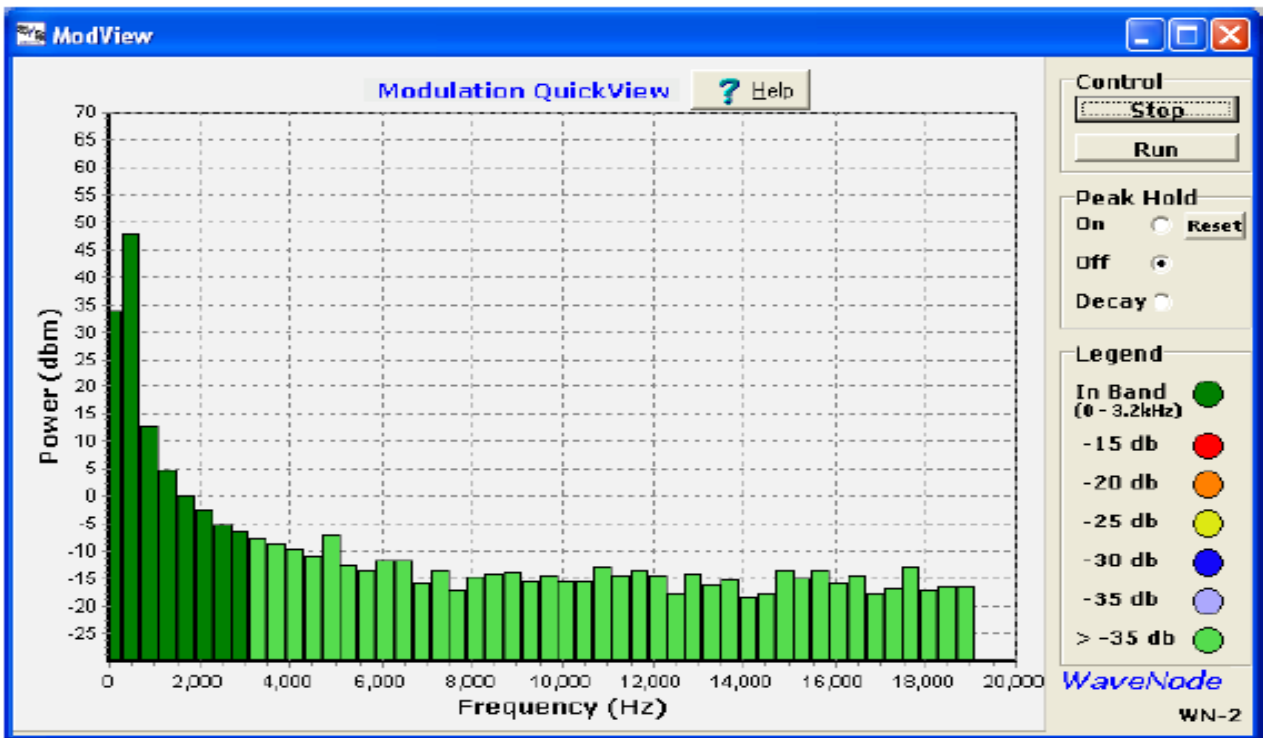
Modulation Scope

Scope shows actual RF Voltage at the coax in Volts Peak-Peak. I found this function very helpful when adjusting the micro phone compression setting on my Kenwood TS 2000.



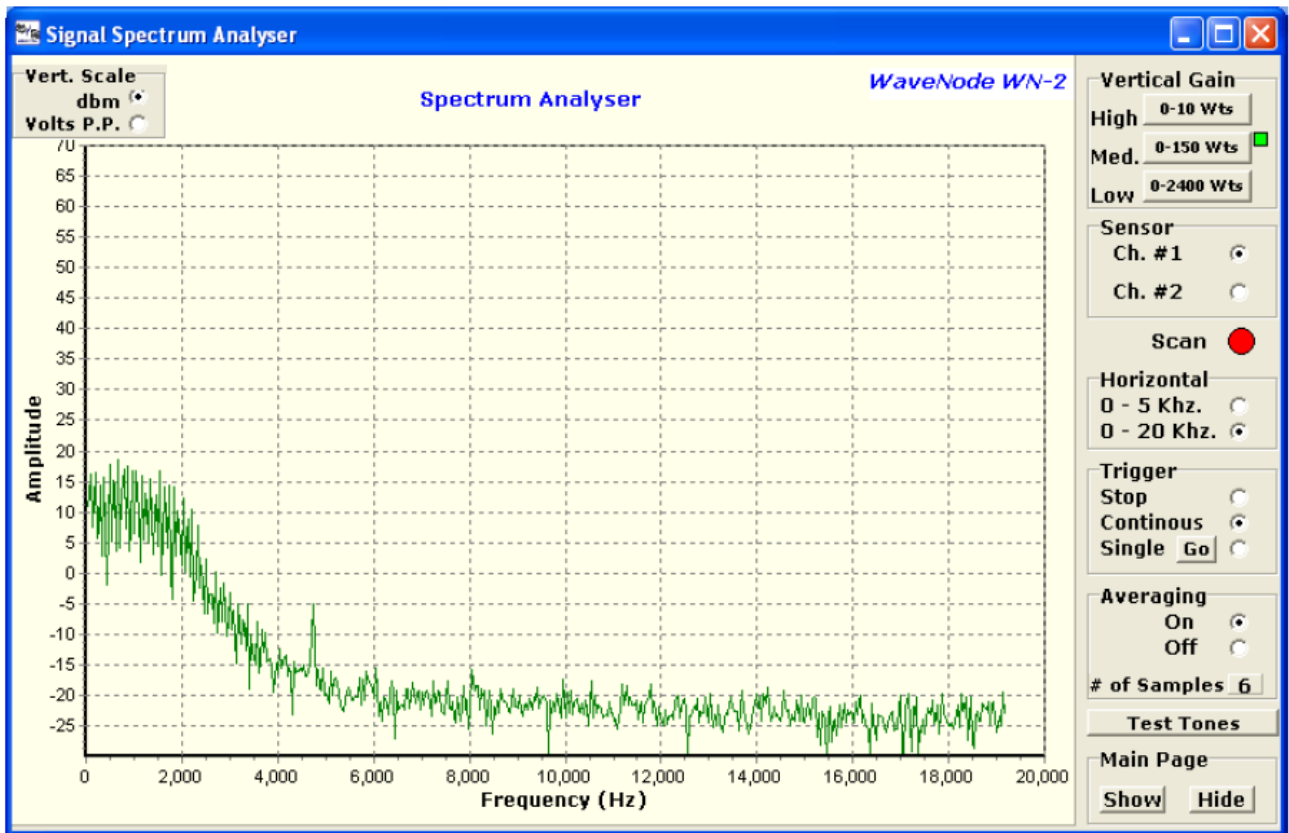
Modulation Pattern on SSB

The quick view function on the modulation screen can display in real time and continuous monitoring, fast and continuous viewing of IM and Splatter components into adjacent frequencies. The energy is divided into 400Hz segments and compared to DC -3 KHz energy.



The typical SSB Energy Spectrum

The Spectrum Analyser provides DC to 20 KHz modulation analysis.



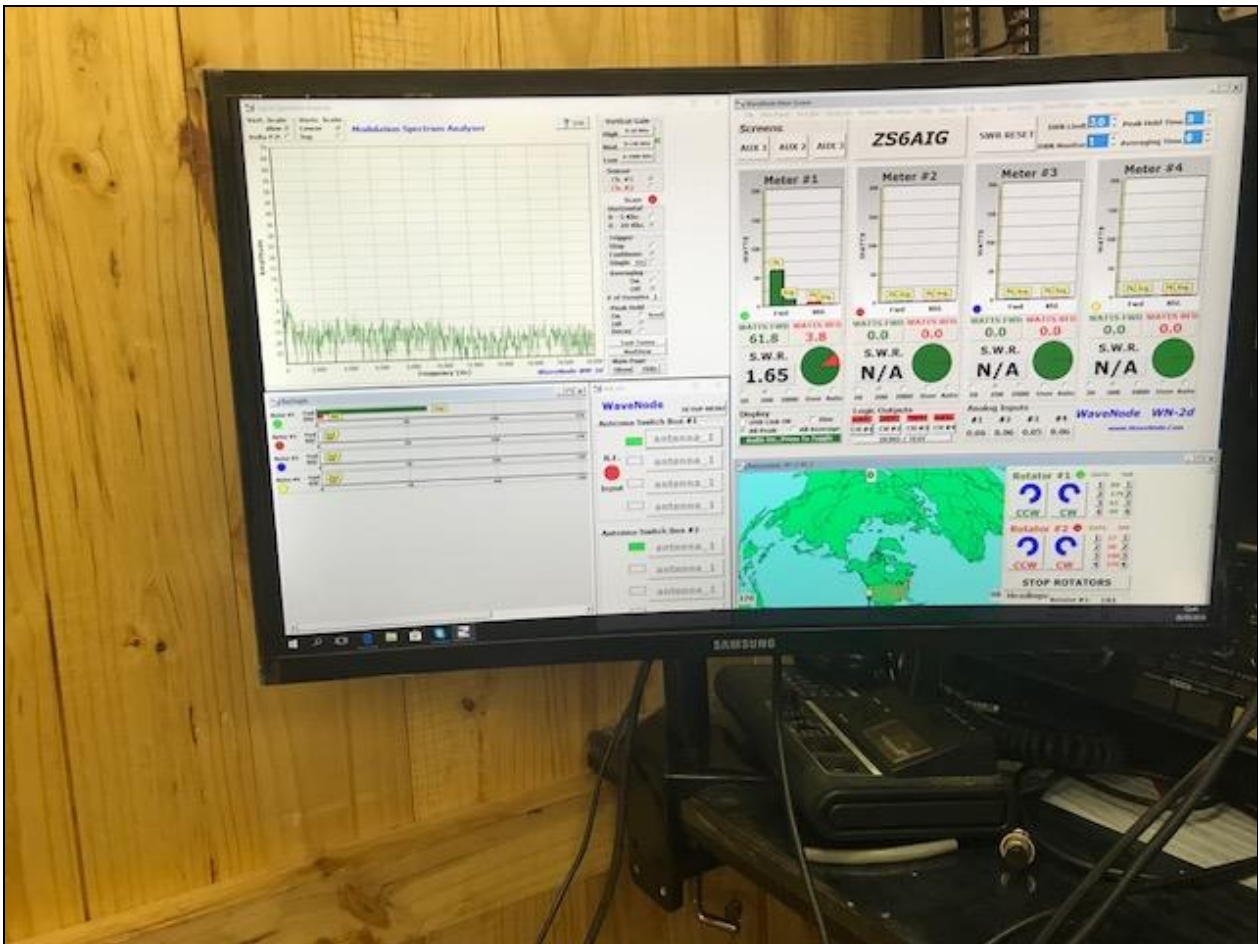
Rotator Controller Software View

Typical map view of RT-1 and RT-2 rotator control software. CCW/CW buttons control the rotator, as well as simply clicking on the map view. Rotator headings and graphical viewing make rotator control easy and intuitive.

The RT-1 and RT-2 rotator controllers are only for use with Yaesu DXA and DXC rotators. They are installed inside the Wattmeter controller unit and connect to your rotator control box(s) via a supplied 3 meter long DIN cable.

No other calibration is required, just connect the cable(s) to your rotator control box(s) and click on the map to move your antenna to the correct beam heading(s). The background views are provided to your exact location, and centered on the QTH. Important setup is to ensure that the rotator and antenna are pointing true South before installing.

The Wave Node is very practical, user friendly, easy to install and does not require multiply SWR/Watt meters in the shack anymore.



Fully functioning in my shack : Vernon ZS6AIG

CQ Hou Koers

Die afgelope paar naweke was die CQ Hou Koers Voortrekker groep onder leiding van Nic Louw ZS6NWL, met die bystand van Pieter Fourie ZS6CN besonder besig met lesings en praktiese oefeninge met verskeie skoolgroepe. Baie dankie aan Nic n Pieter vir hul harde werk en die fotos gestuur op hierdie en die opvolgende bladsy.





PARK Snuffelmark 27 Oktober / PARC Flea Market 27 October

Die laaste snuffelmark vir 2018 het op die 27^{ste} Oktober by die Pretoria Ou Motorklub plaasgevind. Soos altyd was daar genoeg te koop by die verskeie tafels end it was 'n goeie geleentheid om vir almal wat daar was die blad te skud. Graag wil die Pretoria Amateur Radioklub vir Alméro Du Pisani ZS6LDP van harte bedank vir sy puik reelings met die snuffelmark. Ook bedank ons van harte vir Kenny ZS6KMM en Paddy Martin en Whitey ZS6JJJ en Erna vir die braai van heerlike worsbroodjies wat tydens die geleentheid verkoop is. Die snuffelmarkte vir 2019 sal binnekort deur Alméro aangekondig en in Watts gepubliseer word.



Fritz Sutherland ZS6SF en Alméro Du Pisani ZS6LDP



Vincent Harrison ZS6BTY en Pierre Holtzhausen ZS6PJH



Kenny Martin ZS6KMM

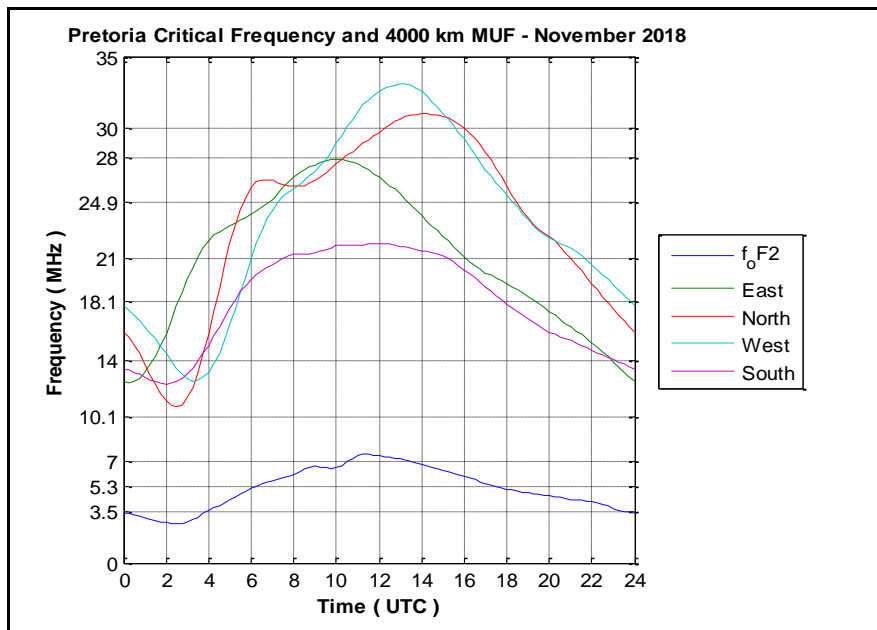


Pine Pienaar ZS6OB en Charles Mills ZS6CJM



Pierre ZS6PJH en Hans Kappetijn ZS6KR (Erelid) ; Hans en Thobile Koni ZS6TKO





Long Term HF Propagation for November 2018 : Courtesy Vincent Harrison 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 F-layer frequency for short range communications.

For worldwide propagation see: <http://www.parc.org.za/index.php?page=propagation>

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

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 - Plug-in triple sequential industrial timers
- Contact Hans at 012-333-2612 or 072-204-3991