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WATTS

05-2011

Year 81 + 5m

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: 145,725 MHz 08:45 Sundays/Sondae
Relays: 1.840, 3.700, 7.066, 10.135, 14.235, 51.400, 438.825, 1297 MHz
Activated frequencies are announced prior to bulletins

Swapshop: 2m and 7.066 MHz Live on-air after bulletins
Bulletin repeats Mondays | herhalings : Maandae 2m 19:45

Recent Sasol Rally with PARC radio assistance.

Malcolm ZR6OLM, Mid Pt Radio Marshal and Medical Team with 4x4 response vehicle and Crowd Control to ensure spectator safety. Sabie and Nelspruit areas.

Mid-Point Team deployment



In this issue

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- | Makeshift earth plane |
- Page eight Bladsy agt

In hierdie uitgawe

Next Meeting

Date: Wed 11 May 2011
Time: 19:30 for 20:00

Building #4
University of Pretoria.
S/E corner University
and Lynnwood roads

PARC Management team / Bestuurspan Aug. 2010 - Aug. 2011

Committee members

Chairman, SARL liaison	Pierre Holtzhausen	ZS6PJH	chairman@zs6pta.org.za	012-655-0726	082-575-5799
Vice-Chairman, Fleamarket	Alméro Dupisani	ZS6LDP	fleamarket@zs6pta.org.za	012-567-3722	083-938-8955
Secretary, Treasurer	Richard Peer	ZS6UK	treasurer@zs6pta.org.za	012-333-0612	082-651-6556
Repeaters, Technical	Craig Symington	ZS6RH	technical@zs6pta.org.za		072-724-9695
Rally co-ordinator	Johan de Bruyn	ZS6JHB	rally@zs6pta.org.za	012-803-7385	082-492-3689
Web co-ordinator, Secretary	Graham Reid	ZR6GJR	webmaste@zs6pta.org.za		083-701-0511
Social co-ordinator	Doréen de Bruyn	ZR6DDB		012-803-7385	082-857-9691
	Willie Greyling	ZR6WGR	social@zs6pta.org.za		082-940-2490

Co-opted / Geko-opteer:

Auditor	Elma Basson				
WATTS newsletter/Kits	Hans Kappetijn	ZS6KR	editor@zs6pta.org.za	012-333-2612	072-204-3991
Asset control	Andre van Tonder	ZS6BRC	andre.vtonder@absamail.co.za	361-3292	082-467-0287
Klubfasiliteite, Vlooiemark	Willie Greyling	ZR6WGR	facility@zs6pta.org.za		082-940-2490
Rallies	Johann de Beer	ZR6YV		011-918-1060	082-857-1561
Contest co-ordinator	Pieter Human	ZS6PA	contest@zs6pta.org.za	012-800-2888	082-565-6081
Training co-ordinator	Fritz Sutherland	ZS6ASF	training@zs6pta.org.za	012-811-3875	083-304-0028
Historian, Awards	Tjerk Lammers	ZS6P	zs6p@iafrica.com	012-809-0006	
Public relations	Alméro Dupisani	ZS6LDP	fleamarket@zs6pta.org.za	12-567-3722	083-938-8955

Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 9 April 2011.

Welcome: The chairman welcomed all present.

Present: See register, 9 members.

Apologies: See register, 4 apologies.

Joys & Sorrows: Molly ZR6MOL is still in Weskoppies, Bertha, sw of Hans ZS6KR had a birthday yesterday.

Minutes: The minutes of the March meeting were published. Approved by Craig ZS6RH and seconded by Alméro ZS6LDP.

Rally: The communications at Belfast went well.

Web site: Not much changed. Poll will be done by e-mail and not via the web.

Finances: We have a bank balance of R3755.45. An unidentifiable subscription was received during February.

SARL AGM: Pierre ZS6PJH is going, Richard ZS6UK will connect with him.

Flea Market: The date of the next flea market is 28 May, and will be held at PMC at 08:00.

Contests: Pieter ZS6PA is raising the contest calendar with the league.

Technical: There has been a problem with access to the Donkerhoek site. The mine had several incidents, two of which had loss of life. The department of health and safety has had the mine management jack up safety and security. The mine has also had several changes in management. Various safety requirements have been implemented and a letter of introduction is now required. Fritz ZS6ASF has an alternate site available and Web industries has another site further east.

The Kenwood has been tweaked a bit and the voting system is critical on levels, noise also affects the comparator.

Fox hunt: The next fox hunt will be on Saturday 14 May, generally the first Saturday after the club meeting.

Licenses: As ICASA has not gazetted the new license fees, the old fees will apply from 1 April 2011 to 31 March 2012, and these are payable before the end of April. The new regulations are on the SARL web site, but many errors are existing and being worked on.

Presentation: A small presentation on tracking devices was made by Hans ZS6KR.

Next meeting: The next meeting will be on Wednesday 11 May 2011 at about 20:00.

Editorial

Listening to the SARL AGM proceedings by radio there appeared to be a positive attitude and eagerness to assist the SARL to maintain its status and operations by some 60 delegates and their many proxies.

Non-members (mainly) have in the past aired various gripes and negative comments on the SARL website Forums and these were for the whole world to read.

The attack phenomenon is not new as the accompanying picture from an old Radio ZS prior to the internet age shows.

Consequently by almost a unanimous vote there will be no more access by non-members to the Forums as possibly other privileges.

Non-members should seriously consider that about R1 per day is a very cheap hobby insurance and allows you to put forward motions and exercise your voting right. See page 3 for membership options.



Birthdays

May Verjaarsdae



- 01 Amanda, dogter van Martie en "JB" ZR6YV
- 02 Chris ZS6LOG
- 06 Lourens ZS6KRT
- 06 Suzette ZS6SZT, dogter van Magda ZS6MVW en Pieter ZS6PVW
- 10 Roy ZR6RV
- 11 Zdena, sw of Ivo ZS6AXT
- 14 Johannes ZS6BPB
- 14 Pieter ZS6PVW, ok van Magda ZS6MVW
- 22 Darren, son of John ZR6JAO
- 17 Vincent ZS6BTY
- 20 Deryck ZS6KQ

Mei

Anniversaries Herdenkings

- 23 Lily, sw of Harry ZS6AMP
- 25 Tjerk ZS6P
- 26 Victor ZS6VG
- 28 Flip ZS6BSO / ZS4GE
- 31 Gawie ZS6GJJ (79)
- 31 Dave ZS6JW (87)

Joys and Sorrows | Lief en Leed

Ed ZS6UT became grandpa for the second time on April 30.

Evan ZS6ELI married on 10 April in Cape Town – Congratulations!

Izette ZS6LZT is op 23 April getroud met Anton Pienaar en verhuis na Hoedspruit. – Baie geluk!

Diary | Dagboek (UTC times)

May

- 18-22 Follow Dayton Hamvention on W5KUB.com
- 21 Judgement Day (according to Harold Camping)**
- 21-22 Eu PSK DX Contest 12:00-12:00
- 21-22 HM of Spain CW Contest 12:00-12:00
- 25 Closing date for NSN awards nominations
- 28 PARC Fleamarket**
- 28-29 CQ WW WPX CW Contest 00:00-23:59

June

- 04-05 SEANET Contest 12:00-12:00
- 11 Portugal Day Contest 00:00-24:00
- 18 Programming in windows course Gauteng
- 25-26 HM of Spain SSB Contest 12:00-12:00

Be an early bird!

PARC SUBS / LEDEGELD 30-06-2011

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Your call sign must appear as statement text! !

Snippets | Brokkies

ZS6PTA@QSL.net was announced as our temporary contact address. Ignore the ZS6PTA addresses in WATTS until further notice.

Pine ZS6OB received the Joseph White Plaque at the recent SARL AGM. Congratulations!

SARL Subscription Rates for 2011/2012

Membership category	Full year - 1 July 2011 to 30 June 2012	From Jan 2012	Note: Half yearly rates are for new members only
Ordinary member	R380	R220	Licensed
Senior member	R225	R130	Retired person over 65
Family member	R125	R 70	Spouse or dependent of a member
Students	R 60	R 40	Students with valid student card
Overseas member	R380	R220	Licensed or non-licensed resident outside South Africa
Affiliated Club Member	R120		Club or organisation

SARL

Account name:

South African Radio League

Bank

Absa 632005

Acc 407 158 8849

NEW REGULATIONS RAISE CONCERNS

from HQ bulletin 3 April 2011

The radio regulations were published on 31 March and came into effect on 1 April 2011. Unfortunately, a number of mistakes have crept in, which ICASA is already working on to rectify as soon as possible.

The regulation for a ZU license is incorrect; the word "under" was left out in front of the 20 years. The situation is as follows: anyone can write the class B examination. There is no age restriction, but if you are over 20 years of age you cannot apply for a class B license, also known as a ZU license. If you have a class B qualification you will be able to keep a ZU license until you reach 25, when the license falls away.

The position of current ZU license holders has not been finalised. ICASA is likely to allow a two-year grace period for persons over 25 with a class B qualification to upgrade their class B certificate to a class A and apply for a class A license. To upgrade means having to write the class A examination.

Candidates over 20 years of age who have registered for the class B examination may still write, but should note that they will not be able to apply for any Amateur Radio license. The SARL recommends that you change your registration to Class A or request that your registration is postponed till the October examination to allow you more time to study.

In line with common practice, the Regulation Syllabus for the May examination remains unchanged, since it is already midterm. Candidates will thus be examined on the regulations in force when they started their studies earlier this year. The examination papers have already been completed. In the October examination candidates will be examined on the new regulations and any amendments that may be published soon.

If you are currently a ZR, you now have the same privileges as a ZS license holder. The upgrade process falls away. The new table of amateur radio frequency allocation is incorrect. Both ZR and ZS should follow the frequencies and power limits marked as A1. ZR license holders do not have to change their callsign.

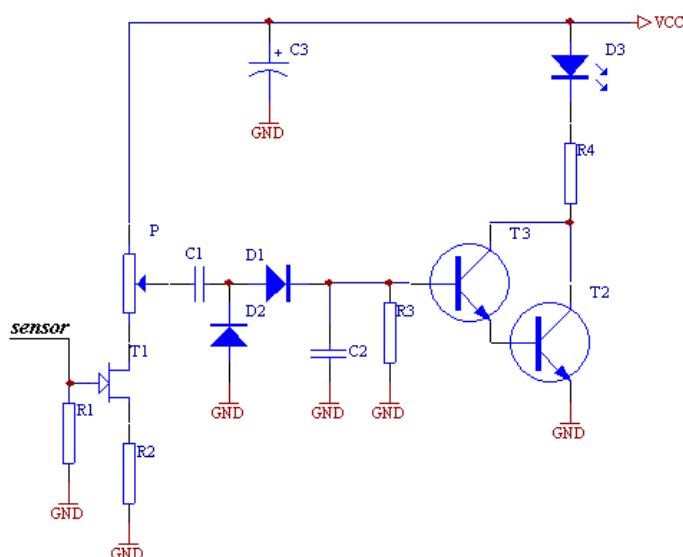
220V live wire-in-wall scanner

from PCBheaven.com

Description

This little circuit will help you to scan the line of a 220V live wire in the wall. The FET gate is connected to a capacitive metal sensor (which is usually a simple metal plate). When you hold the sensor close to the wall, the LED will indicate the current flow around where it detects the wire. Works on 9VDC.

Schematic diagram

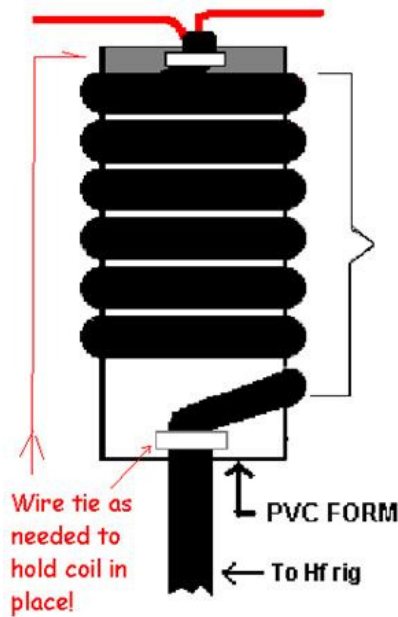


component	value
R1	15M
R2	1.8k
R3	1M
R4	470
P	10k
D1	1N4148
D2	1N4148

component	value
C1	2.2u
C2	100n
C3	22u
T1	BF244
T2	BC182B
T3	BC182B

Coiled coax as a balun

an alternative to your expensive commercial balun?



These pictures and many others can be seen at <http://www.hamuniverse.com/balun.html>

The tabled measurements and conclusions below are by Ed Gilbert WA2SRQ



Picture above courtesy of VE7AVV

Coiled coax at the antenna feed point can also prevent the downward flow of RF current on the outer surface of the braid when feeding a balanced antenna with unbalanced coax since the coil made of the same coax acts as a choke with a certain impedance.

The coil is necessarily of a large diameter so as not to deform the coax and turns must preferably be spaced a little to reduce capacitive coupling between the turns.

Measurements

Magnitude in ohms, phase angle in degrees, as a function of frequency in Hz, for various baluns.

Frequency	6 Turns 4-1/4 in sngl layer		12 Turns 4-1/4 in sngl layer		4 Turns 6-5/8 in sngl layer		8 Turns 6-5/8 in sngl layer		8 Turns 6-5/8 in bunched		Ferrite beads (Aztec)	
	Mag	Phase	Mag	Phase	Mag	Phase	Mag	Phase	Mag	Phase	Mag	Phase
1.00E+06	26	88.1	65	89.2	26	88.3	74	89.2	94	89.3	416	78.1
2.00E+06	51	88.7	131	89.3	52	88.8	150	89.3	202	89.2	795	56.1
3.00E+06	77	88.9	200	89.4	79	89.1	232	89.3	355	88.9	1046	39.8
4.00E+06	103	89.1	273	89.5	106	89.3	324	89.4	620	88.3	1217	26.6
5.00E+06	131	89.1	356	89.4	136	89.2	436	89.3	1300	86.2	1334	14.7
6.00E+06	160	89.3	451	89.5	167	89.3	576	89.1	8530	59.9	1387	3.6
7.00E+06	190	89.4	561	89.5	201	89.4	759	89.1	2120	-81.9	1404	-5.9
8.00E+06	222	89.4	696	89.6	239	89.4	1033	88.8	1019	-85.7	1369	-15.4
9.00E+06	258	89.4	869	89.5	283	89.4	1514	87.3	681	-86.5	1295	-23.7
1.00E+07	298	89.3	1103	89.3	333	89.2	2300	83.1	518	-86.9	1210	-29.8
1.10E+07	340	89.3	1440	89.1	393	89.2	4700	73.1	418	-87.1	1123	-35.2
1.20E+07	390	89.3	1983	88.7	467	88.9	15840	-5.2	350	-87.2	1043	-39.9
1.30E+07	447	89.2	3010	87.7	556	88.3	4470	-62.6	300	-86.9	954	-42.7
1.40E+07	514	89.3	5850	85.6	675	88.3	2830	-71.6	262	-86.9	901	-45.2
1.50E+07	594	88.9	42000	44.0	834	87.5	1910	-79.9	231	-87.0	847	-48.1
1.60E+07	694	88.8	7210	-81.5	1098	86.9	1375	-84.1	203	-87.2	778	-51.8
1.70E+07	830	88.1	3250	-82.0	1651	81.8	991	-82.4	180	-86.9	684	-54.4
1.80E+07	955	86.0	2720	-76.1	1796	70.3	986	-67.2	164	-84.9	623	-45.9
1.90E+07	1203	85.4	1860	-80.1	3260	44.6	742	-71.0	145	-85.1	568	-51.2
2.00E+07	1419	85.2	1738	-83.8	3710	59.0	1123	-67.7	138	-84.5	654	-34.0
2.10E+07	1955	85.7	1368	-87.2	12940	-31.3	859	-84.3	122	-86.1	696	-49.9
2.20E+07	3010	83.9	1133	-87.8	3620	-77.5	708	-86.1	107	-85.9	631	-54.8
2.30E+07	6380	76.8	955	-88.0	2050	-83.0	613	-86.9	94	-85.5	584	-57.4
2.40E+07	15980	-29.6	807	-86.3	1440	-84.6	535	-86.3	82	-85.0	536	-58.8
2.50E+07	5230	-56.7	754	-82.2	1099	-84.1	466	-84.1	70	-84.3	485	-59.2
2.60E+07	3210	-78.9	682	-86.4	967	-83.4	467	-81.6	60	-82.7	481	-56.2
2.70E+07	2000	-84.4	578	-87.3	809	-86.5	419	-85.5	49	-81.7	463	-60.5
2.80E+07	1426	-85.6	483	-86.5	685	-87.1	364	-86.2	38	-79.6	425	-62.5
2.90E+07	1074	-85.1	383	-84.1	590	-87.3	308	-85.6	28	-75.2	387	-63.8
3.00E+07	840	-83.2	287	-75.0	508	-87.0	244	-82.1	18	-66.3	346	-64.4

Interpreting the Measurements

All the baluns start out looking inductive at low frequencies, as indicated by the positive phase angles. As the frequency is increased, a point is reached where the capacitance between the windings forms a parallel resonance with the coil's inductance. Above this frequency, the winding reactance is reduced by this capacitance.

The interwinding capacitance increases with the number of turns and the diameter of the turns, so "more is not always better".

The effects of a large increase in interwinding capacitance is evident in the measurements on the balun with the bunched turns. This is probably a result of the first and last turns of the coil being much closer together than the single-layer coil.

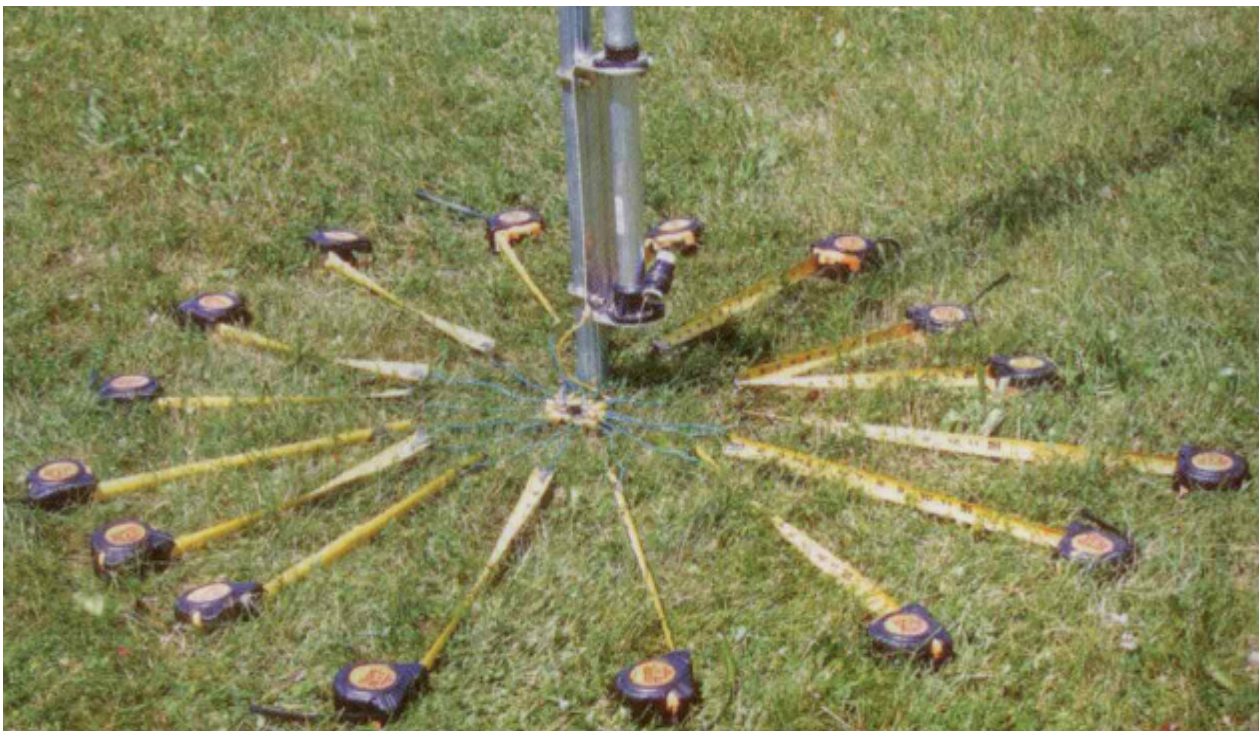
An important requirement of these baluns is that the magnitude of the winding reactance be much greater than the load impedance. In the case of a 50 ohm balanced antenna, the balun's winding impedance is effectively shunted across one half the 50 ohm load impedance, or 25 ohms. A reasonable criteria for the balun's winding impedance for negligible common mode current in the shield is that it be at least 20 times this, or 500 ohms. The measurements show, for example, that 6 turns 4-1/4 inches in diameter meet this criteria from 14 to 35 MHz.

The measurement data also reveals the power loss these baluns will exhibit. Each of the measurement points can be transformed from the polar format of the table to a parallel equivalent real and reactive shunt impedance. The power dissipated in the balun is then the square of the voltage across it divided by the real parallel equivalent shunt impedance. While this calculation can be made for each measurement point, an approximate number can be taken directly from the tables at the parallel resonance points. At 0 degrees phase angle the magnitude numbers are pure resistive. I didn't record the exact resonance points, but it can be seen from the tables that the four single-layer baluns are all above 15K ohms, while the ferrite bead balun read about 1.4K. These baluns see half the load voltage, so at 1500 watts to a 50 ohm load, the power dissipated in the coaxial baluns will be less than 1.3 watts, and the ferrite bead balun will dissipate about 13.4 watts (neglecting possible core saturation and other non-linear effects). These losses are certainly negligible. At 200 ohms load impedance, the losses are under 5 watts for the coaxial baluns and 53.6 watts for the ferrite beads.

Conclusions

- A 1:1 coaxial balun with excellent choking reactance for 10 through 20 meters can be made by winding 6 turns of RG-213 on inexpensive 4 inch PVC sewer pipe.
- For 40 or 30 meters, use 12 turns of RG-213 on 4 inch PVC sewer pipe.
- Don't bunch the turns together. Wind them as a single layer on a form. Bunching the turns kills the choking effect at higher frequencies due to capacitive coupling between turns.
- Don't use too many turns. For example, the HyGain manuals for my 10 and 15 meter yagis both recommend 12 turns 6 inches in diameter. At the very least this is about 3 times as much coax as is needed, and these dimensions actually give less than the desired choking impedance on 10 and 15 meters.

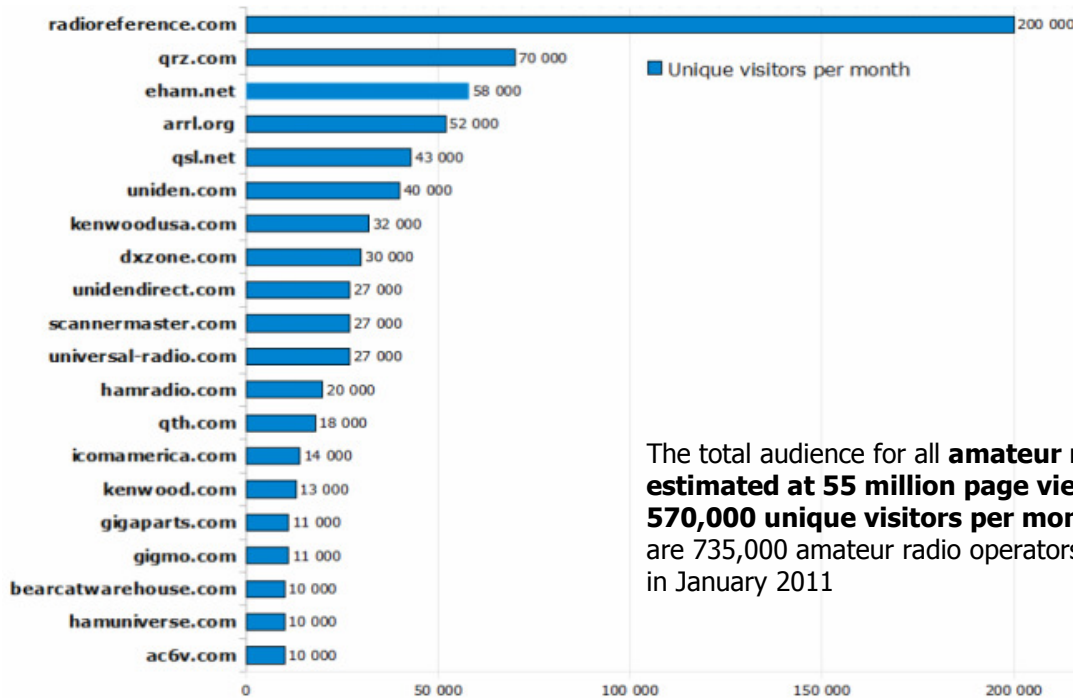
Try this for a makeshift earth plane...



Google Stats

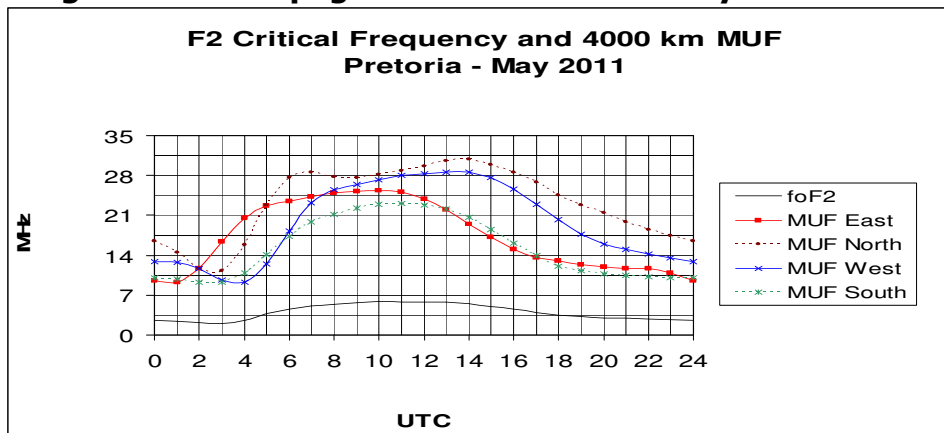
brought to our attention by Evan ZS6ELI

Doubleclicking / Google Adplanner, lets us know which websites have the more unique visitors, page views, in any given topic, and for ham radio too ! In other words Google knows and reveals "approximate" statistics for any websites or blogs (except those from Google of course) and making more than 2 to 3,000 visitors per day. This tool provides the first classification, objective and based on the audience of amateur sites in the U.S., here for the month of January 2011.



The total audience for all **amateur radio sites is estimated at 55 million page views and 570,000 unique visitors per month** and there are 735,000 amateur radio operators in the U.S. in January 2011

Long Term HF Propagation Prediction for May 2011



Courtesy ZS6BTY (see also our website propagation tab)

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.

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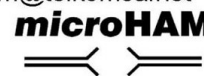
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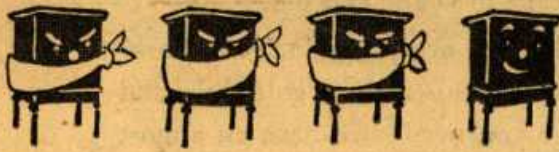
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653 W. 181st St.
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Bronx—120 E. Fordham Rd.
Bronx—324 E. Fordham Rd.
Bronx—3963 Third Ave.

Times Square—
152 W. 42 St.

Brooklyn—417 Fulton St.
Brooklyn—1304 Kings Highway
Brooklyn—5108 Fifth Ave.
Brooklyn—1449 Broadway
Brooklyn—359 Fulton St.
Brooklyn—14 De Kalb Ave.
Brooklyn—355 Flatbush Ave.
Brooklyn—527 Fulton St.
Rensselaer—2055 86th St.
Brownsville—1703 Pitkin Ave.
Astoria—278 Steinway Ave.
Jamaica—166-07 Jamaica Ave.
Jamaica—164-02 Jamaica Ave.
Flushing—43 Main St.

NEWARK—69 Park Place (Military Park Bldg.)

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And Kuprox has made conversion so easy! You don't have to change a single wire or alter the set in any way. Not even new tubes are necessary. Just connect the Kuprox A. C. Power Pack between the A. C. electric light socket and your set, and

Kuprox is being used by leading railroad, telephone and telegraph lines in voice, code and signal transmission. It is rapidly replacing many other forms of power units.

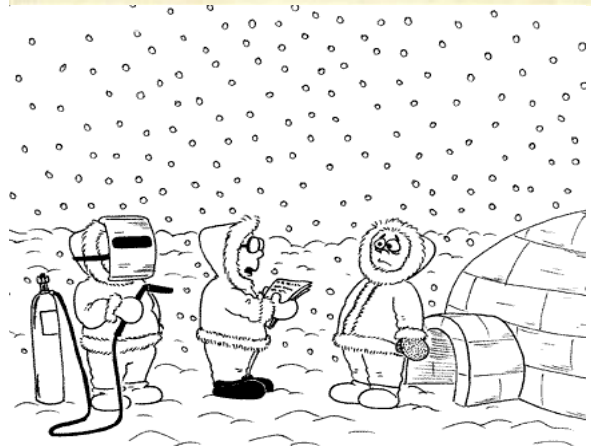


Your dealer also has the new Kuprox Multi-rate Trickle Charger and the Kuprox Replacement Unit for eliminating the acid in all standard wet trickle chargers.

The KODEL ELECTRIC & MANUFACTURING CO.
Formerly The Kodel Radio Corporation
521 E. PEARL ST. CINCINNATI, OHIO

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KUPROX A.C. POWER PACK



You are 3 months behind with your mortgage payments. I'm afraid we'll have to melt your igloo.