# WATTS

03-2012

Year 82 + 3m

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

PARC, PO Box 12602, Die Hoewes, 0163, RSA

web 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

ZR6FD logo

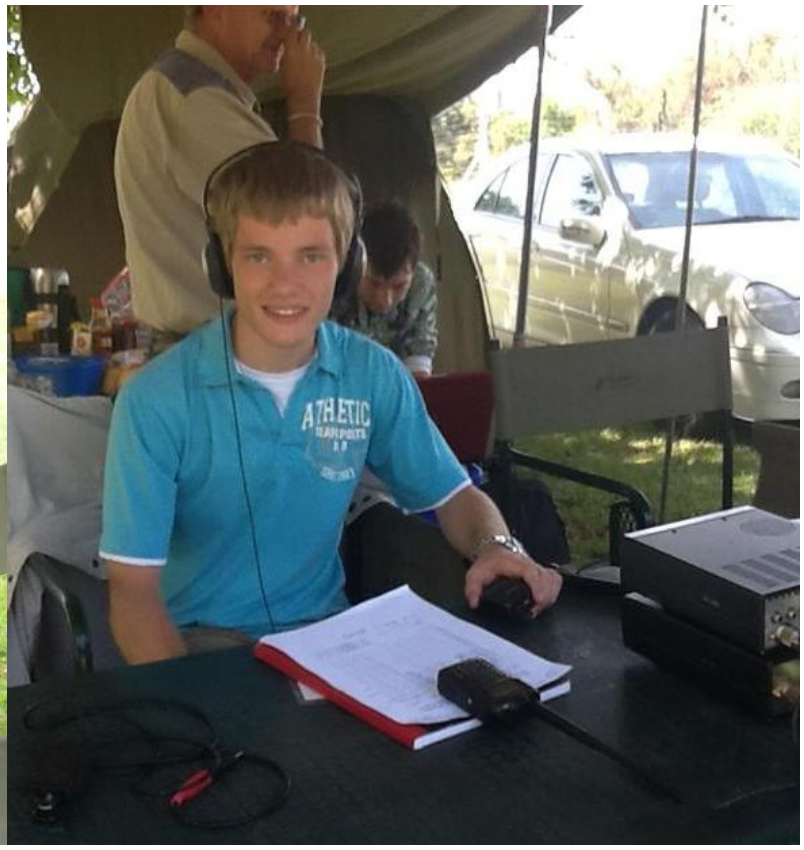
Drukwerk printing ZS6JPL

Papier / Paper ZS6JPL


## SARL HF Field day

Father Vince ZS6BTY and son Liam ZR6RAF were some of the operators at our field station set up on the PMC premises in Silverton.

More pictures inside.



## In this issue



## In hierdie uitgawe



## Next fleamarkets and socials 2012

**25 Feb**
**2 June**
**1 Sept**
**8 Dec**

**Venue: PMC, Silverton**

# PARC Management team / Bestuurspan Aug. 2011 - Aug. 2012

Committee members

| | | | | | |
|---|---|---|---|---|---|
| **Chairman** | Pierre Holtzhausen | ZS6PJH | zs6pjh@telkomsa.net | 012-655-0726 | 082-575-5799 |
| **Vice Chairman, Fleamarket, PR** | Alméro Dupisani | ZS6LDP | almero.dupisani@up.ac.za | 012-567-3722 | 083-938-8955 |
| **Treasurer, repeater maint.** | Andre van Tonder | ZS6BRC | andreh.vtonder@absamail.co.za | 361-3292 | 082-467-0287 |
| **Rallies, Social** | Johan de Bruyn | ZS6JHB | zs6jhb@gmail.com | 012-803-7385 | 082-492-3689 |
| **Webmaster** | Graham Reid | ZR6GJR | greid@wol.co.za | 083-701-0511 | |

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Co-opted/Geko-opteer:

| | | | | | |
|---|---|---|---|---|---|
| **Auditor** | Tony Crowder | ZS6CRO | tcrowder@telkomsa.net | 011-672-3311 | |
| **Secretary** | Jean de Villiers | ZS6ARA | zs6ara@webmail.co.za | 012-663-6554 | 083-627-2506 |
| **SARL liason** | Jan Pienaar | ZS6OB | pienaarja@gmail.com | | 082-447-7823 |
| **WATTS newsletter/Kits** | Hans Kappetijn | ZS6KR | zs6kr@wbs.co.za | 012-333-2612 | 072-204-3991 |
| **Repeaters, Technical** | Craig Symington | ZS6RH | zs6rh@hotmail.co.za | | 081-334-6817 |
| **Clubhouse** | Richard Peer | ZS6UK | zs6uk@peer.co.za | 012-333-0612 | 082-651-6556 |
| **Club contesting** | Sander Wissing | ZS6SSW | sander.wissing@gmail.com | 012- | |
| **Training** | Fritz Sutherland | ZS6ASF | fritzs@icon.co.za | 012-811-3875 | 083-304-0028 |
| **Historian, Awards** | Tjerk Lammers | ZS6P | zs6p@iafrica.com | 012-809-0006 | |

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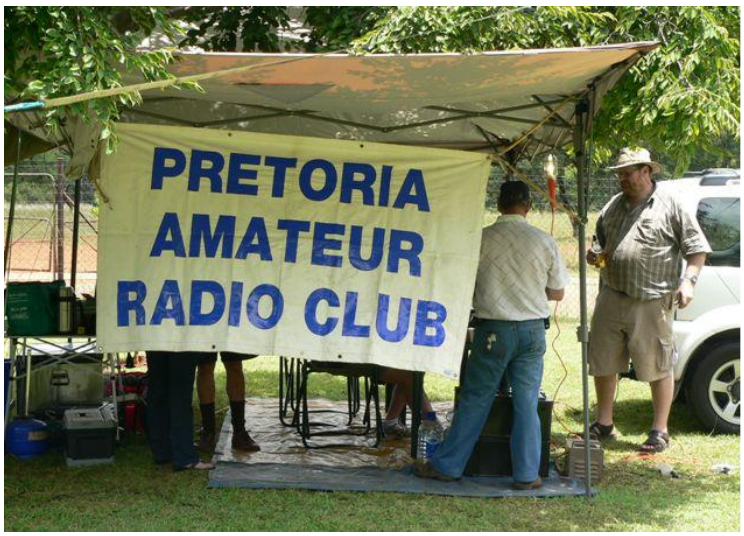
## More field day pictures




## Birthdays Mar. Verjaarsdae

## Anniversaries Mrt. Herdenkings

07 Marilize ZS6MUD, lv van Rudi ZS6RVD
09 Helga, sw of Hans-Peter ZS6AJS
10 Gary ZR6GK
12 Rita, sw of Vitor ZS6VG
13 Rudi ZS6RVD
17 Gerda, sw of Roger ZS6RJ
21 Frances ZR6AUT
21 Martie, lv van 'JB' ZR6YV
22 Ivan OK1LL

16 Marilise en Pierre ZS6PJH

22 Julian ZS6AOU
25 Doreen, ZR6DDB, lv van Johan ZS6JHB
28 Le Clue, seun van Elma en Gawie ZS6GJJ
28 Liezl, dogter van Elma en Gawie ZS6GJJ
31 Annatjie, Sw van Pieter ZS6-2512

## Joys and Sorrows | Lief en Leed

Apparently none…

## Diary | Dagboek (UTC times)

**March**
03-04 ARRL Inter. DX Contest, SSB 00:00- 2400
**04 SARL Hamnet 40m Simulated Emergency Contest 1200-1400**
**10 March madness YL Sprint**
10-11 Beru (Commonwealth Contest) 10:00-10:00. As this is the 75th contest so we have arranged a special prize draw for all entrants who make more than 75 QSO's (after adjudication).
The prize is an SDR-IQ software radio full details of the draw are on the website. If your entry qualifies you will be entered automatically.
The full details are on the website www.beru.org.uk. and you can find links to the rules there too.
Please encourage any of your Commonwealth friends to be active too. 73 and CU in BERU 2012. Bob G3PJT (VP9/G3PJT)
**16-18 SARL VHF/UHF Analogue/Digital Contest 16:00-10:00**
17-18 Russian DX Contest 12:00-1200
24-25 CQ WW WPX Contest, SSB 00:00-2400
**April**
**05 SARL 80m WSO Party**

## Snippets|Brokkies

**Roger ZS6RJ** made 1st place in South Africa on 10m in the 2011 ARRL International DX Contest. See certificate on p7.

### Spray-on Antennas Establish Radio Communications Anywhere….(See video)

**http://www.techthefuture.com/technology/spray-on-antennas-establish-radio-communications-anywhere/**

A tree-antenna, a duct tape-antenna or an entire wall turned into a transmitting device. The nano spray-on antenna technology of Chamtech Enterprises can turn any surface into a wireless connectivity device. Transmitting a signal twice as far as a standard antenna or at half the power.

Anthony Sutera, CEO of Chamtech, presented his invention at Solve For X, a forum recently launched by Google encouraging people to come up with radical solutions backed by breakthrough technology to solve problems that affect the world [video below]. The challenge Sutera is tackling is to get a wireless signal anywhere.
Sutera explains that antenna technology hasn't changed that much since Tesla and Marconi used a copper wire to transmit radio signals. But this technology isn't very efficient because not all electricity is converted into radio waves, some of it is lost as heat. To boost the signal you need to apply more power.

Chamtech is leaving all this behind and gearing up for a paradigm shift in antenna technology.

The company developed a material consisting of thousands and thousands of nanocapacitors. When it is sprayed on a surface the capacitors form a pattern which allows the signal to flow. The capacitors charge and discharge extremely quickly without any heat loss. The signal hops from capacitor to capacitor until it reaches the surface and is launched into space.

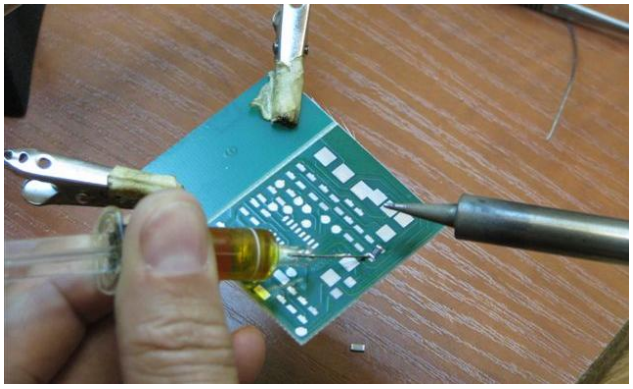
As an experiment the material was sprayed onto a tree and used to transmit a signal. Not only did they create the first tree-antenna it also worked an order of a magnitude better than a standard antenna.
Then they stuck an antenna-sprayed piece of duct tape to an airplane and established a microwave data link with the vehicle 14 miles overhead.

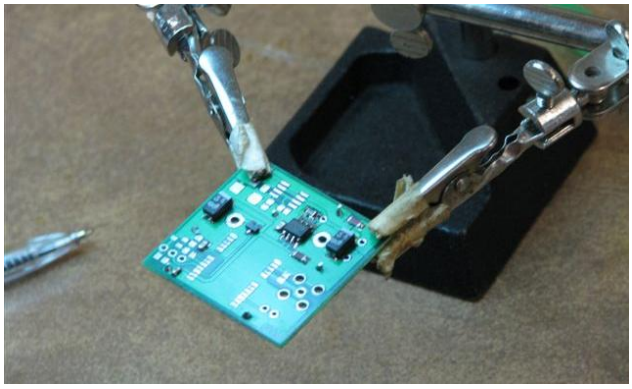
The low power spray-on antenna can aid in getting wireless access anywhere. By boosting signals in cities where buildings block reception and by playing a part in mesh networks to connect remote areas.

**This article was submitted by Johan ZS6JPL**

# SMD Soldeer en APRS boustel kursus

**so 'n paar blikke op die eerste sessie**



# Direct QSL's to DX Stations Too Expensive? Actually, they're a Bargain!

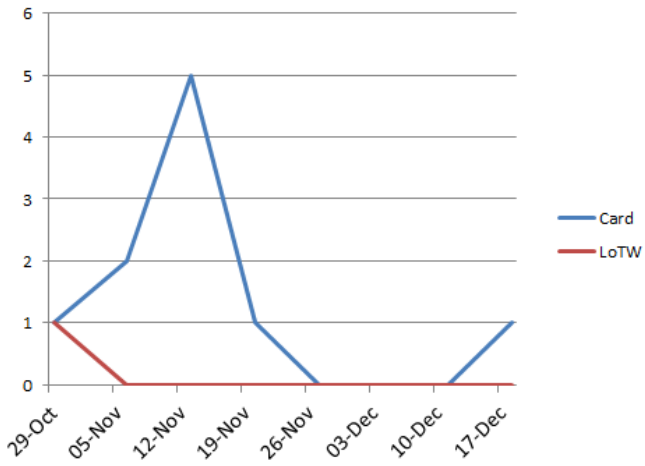
When it comes to sending direct QSL cards to DX stations and covering the costs of a return card, most amateurs in South Africa will quickly agree the cost of confirming those rare ones, or stations needed for awards, is ridiculously high. We tend to feel "hard done by" with the weak rand when shelling out those precious greenbacks.

But I got to wondering late last year – how expensive is it really to get a confirmation from a DX station, compared to needing a card or a confirmation from a local ZS station? In my 28 years as a ham, it's been my contention that it's much harder and more expensive to solicit a card or confirmation from a ZS ham than a DX station.

So when the October 2011 SARL QRP Sprint came along, I thought I'd have some fun and use the event as a yardstick to put my theory to the test. Don't worry – there's absolutely no naming and shaming involved, hi. Here're my unscientific results and conclusions:

**Background:** I made 44 QSO's during the event and sent out 38 direct QSL cards (some cards had multiple CW/SSB QSO's on). To make it as easy as possible for a recipient to reply, a self-addressed stamped envelope included with each. I also uploaded my QSO's from the event to LoTW and eQSL. I couldn't upload to the SARL website because that functionality was broken at the time. I calculated my (rounded) costs as 38 QSO's @ R2 to cover the cost of QSL cards and 76 (outgoing + SASE returns) envelopes, plus R2.50 X qty 76 for all the envelopes. This gives a total cost of R 266 for 38 QSL's posted. Or R7 per QSL. All cards were sent out the day after the event, ditto the LoTW and eQSL uploads. Then I sat back to wait. At the time of writing, it's now 23rd January 2012, so I think it's reasonable to assume anyone who was going to confirm a QSO from this event last year has now done so. Here's the analysis (the event took place on 22nd October):

| | QSL Confirmations Received | | |
|---|---|---|---|
| Week Ending | Card | LoTW | Eqsl |
| 29-Oct | 1 | 1 | 0 |
| 06-Nov | 2 | 0 | 0 |
| 13-Nov | 5 | 0 | 0 |
| 20-Nov | 1 | 0 | 0 |
| 27-Nov | 0 | 0 | 0 |
| 04-Dec | 0 | 0 | 0 |
| 11-Dec | 0 | 0 | 0 |
| 18-Dec | 1 | 0 | 0 |
| | **10** | **1** | **0** |




So what can we conclude from this impromptu experiment?

1. A quantity of 11, or 28.9% of stations worked confirmed QSO's. 2.63% (i.e. 1 station) via LoTW and 26.32% via mail using my return SASE.
2. This equated to each confirmed station costing me R24.18 to obtain a QSL (Total of R 266 expenditure divided by 11 returns).
3. You're most likely to receive your QSL confirmation from local QSO's 3 weeks after the contact (although this is based on you initiating the QSL process with an SASE included)
4. Based on today's spot exchange rate (R 7.65 to the US Dollar) and assuming I send $2 (R15.30) it costs R15.30 in greenbacks, R6 postage and R2 QSL/envelope costs for a total of R 23.30 for a DX QSL card (if the DX replies of course!)
5. At R24.18 it's therefore 88 cents more expensive to successfully solicit a local ZS QSL card than it is to apply for a DX card, which you'll probably receive.
6. Analysing my DX worked in October 2010, (allowing a year for DXpedition policies to upload to LoTW late etc.) my return rate was 84% for the ones I wanted, compared to 28.9% in the ZS exercise. This excludes ones initiated by the DX.
7. To date, I've received no QSL cards from this event via the bureau, despite having received cards from the QSL bureau three times. I'm therefore making the assumption I won't receive any further cards from this event via the bureau route.
8. Based on the 28.9% return rate derived from this exercise, if one was starting a basic WAZS award from scratch, one would have to work 345 stations to receive QSL's from the 100 stations required. That would cost you R 2 415.00 in QSL fees. You can buy a jolly nice 2 metre rig for that money. Or build yourself a hexbeam and get your DXCC QSO's confirmed for free by using LoTW. Food for thought… Although the upside of this is that the framing costs for your WAZS award will seem cheap by comparison. You could even use real wood!

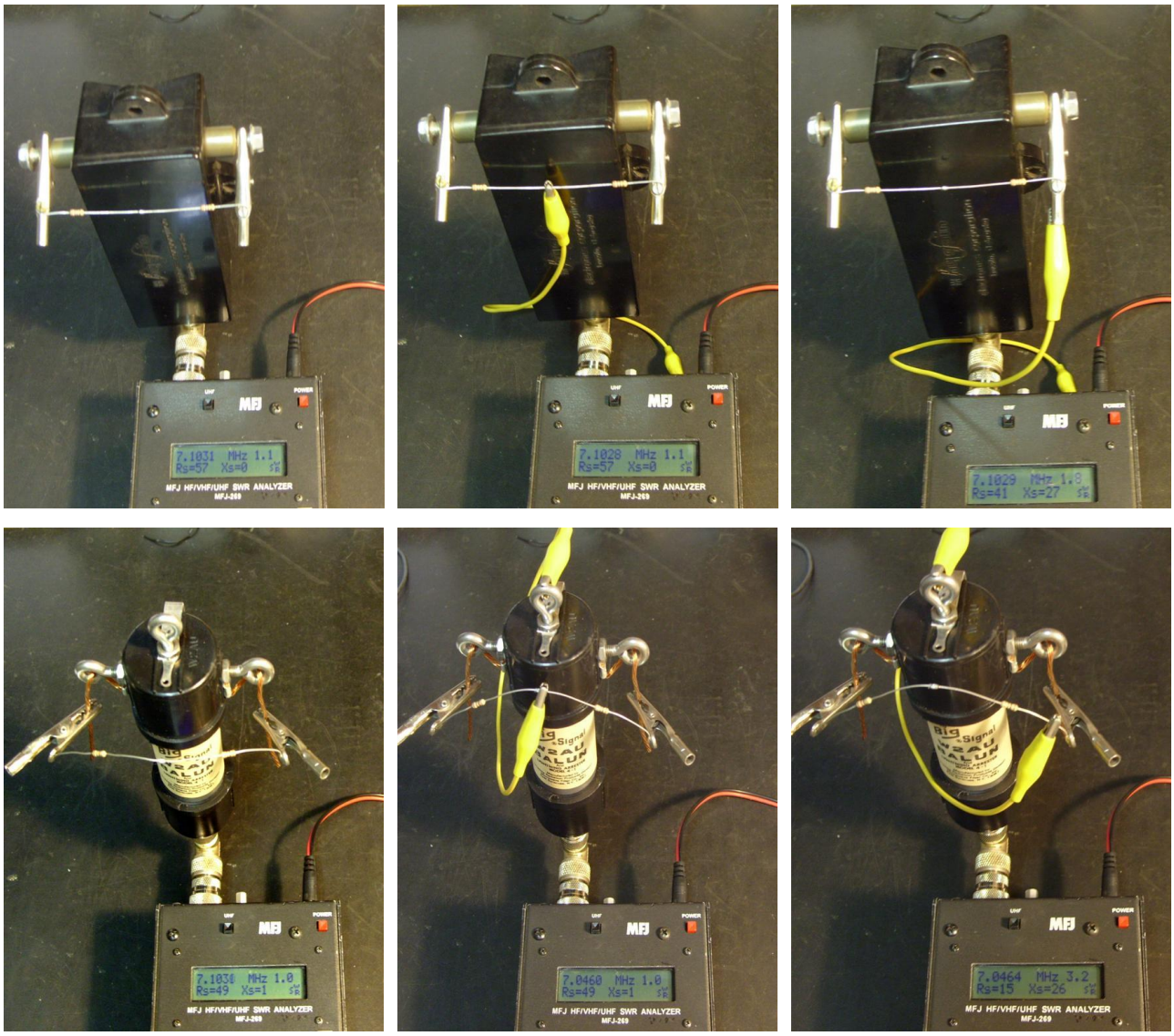
73 & happy QSL'ing, Roger, ZS6RJ

# Simple Balun testing

**ZS6KR**

**Here's how you can determine if your balun is a voltage or current type and doing a proper balancing job.**

For a 1:1 balun terminate in 25+25 ohm resistors ( I only had 27 ohm values) as shown below attached to a Hy-Gain BN-86 balun which is a popular model used by many amateurs. This is a voltage balun and behaves as 1:1 with either a centre connection to ground or not. If any one of the outer points are grounded an unbalance occurs and the R and X values change dramatically.

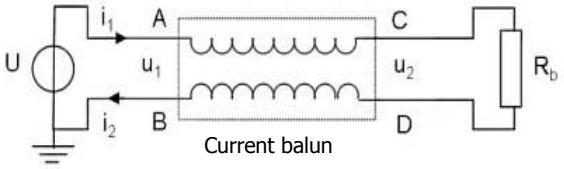



Above is a W2AU 1:4 balun which is terminates in 2x100 ohm. It behaves in the same way as expected from a voltage balun.

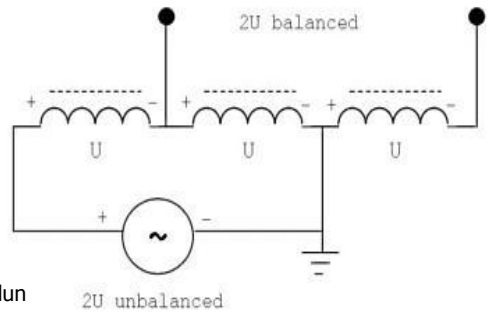
**Driving an antenna with a voltage balun thus results in equal currents in the driven elements provided there is no unbalance in the antenna either by design or proximity of objects.**

**A current balun is of such design that it feeds balanced currents to the antenna driven elements despite possible imbalance in the antenna either by design or proximity of objects.**

Apart from balun efficiency considerations a perfectly balanced antenna in free space should work just as well with either. Current baluns do have greater power capability and lowest loss for given materials and are largely superseding voltage baluns today. For more detail on how both of these are made, see WATTS 06-2007. They are repeated diagrammatically below:




Current balun




Voltage balun

**Although current baluns can be wound bifilar onto a ferrite rod, a coiled coax can do a similar job.**

The following photos show such a balun wound with 9½t RG58 cable onto a large diameter PVC pipe section which was constructed by Pieter ZS6PA.

A table of dimensions and detailed performance of such baluns was published in WATTS 05-2011 and if the shape and mass can be accommodated, you have an affordable solution.

What was intended to illustrate in this article is that a current balun exhibits different measurement behaviour to the voltage balun and is thus electrically distinguishable in that there is no change in reading when the outer point is grounded.

Frequency performance can be done at the same time.

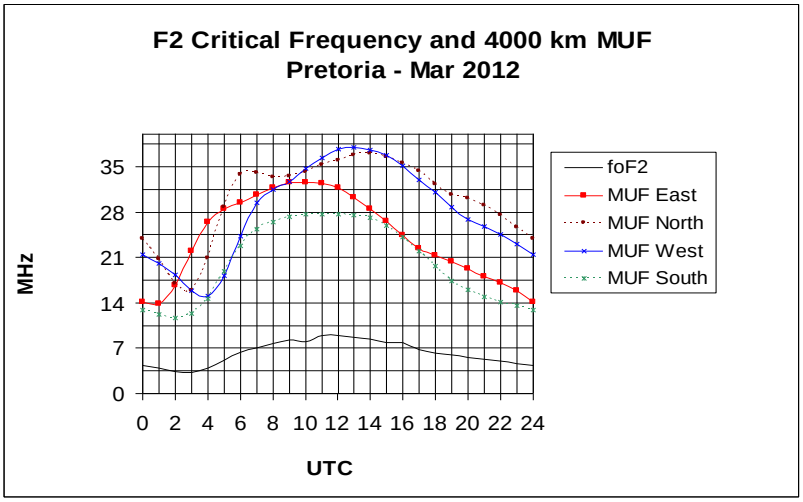

**Current balun terminated in 2 x27 ohms**


**Centre point grounded – no change**


(camera date 5 years behind!)

**Outer point grounded – no change**

## Roger strikes again




# Long Term HF Propagation Prediction for March 2012

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.



## Smile please

Researchers at a famous university found a new type metal. It is a type of steel but you can see through it. They also found a name for it: Chicken mesh.

When early man found out that a cow can give milk, what was he actually doing?

Someone who say he can see through women misses a lot – *Groucho Marx*

Love: An obsessive delusion that can only be cured by marriage.

A good thing Microsoft does not make airbags. Otherwise at every collision it would ask: "are you sure that you want to do this?"

The PA system in a passenger aircraft flying over the Meteor Crater in north Arizona announces: "the crater was formed when a meteorite of nickel and iron, roughly 150 feet diameter, weighing 300.000 tons, hit he earth 50.000 years ago at 40.000 miles per hour. The crater is 5 miles diameter and 570 feet deep". A lady next to me exclaimed: "Wow, it just missed the highway!"

Do workers at Lipton also get coffee break?

Jewish businessman, 49, manufactures Sabbathcandles, Chanukacandles, Havdallahcandles, Yahrzeitcandles, looking for non-smoker. (www.jewishjokes.net)

My computer won me once with chess, but was not my equal in kick-boxing…

Music exam: All female parts were sung by castrati. We don't know exactly how they sounded as there are no ancestors today.