



ZR6FD logo

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# WATTS

## 06 - 2006

Year 76+6m

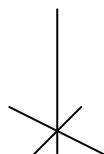
Monthly newsletter of the Pretoria Amateur Radio Club  
Maandelikse nuusbrieff van die Pretoria Amateur Radio Klub.



PARC, PO Box 73696 Lynnwood Ridge 0040, RSA



<http://www.qsl.net/zs6pta>



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

Relays : 1840, 3700, 7066, 10135, 14,200 MHz (Seasonal)

Swapshop : After bulletin 2m and 40m (also on-line)

Bulletin repeats : Mondays 19:45 on 145,725 MHz only

### Fresh from the printers - Our current club QSL card

**ZS6PTA**

Official call sign of the Pretoria Amateur Radio Club, Republic of South Africa.  
ITU Zone 57  
CQ Zone 38  
Acknowledging 2-way QSO with:

Station	Date ddmmyy	UTC	Band	Mode	Report

www.qsl.net/zs6pta

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#### Next Meeting 7 June 2006

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

## PARC Management team / Bestuurspan Aug 2005- Aug 2006:

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<b>Repeater custodian</b>	Pine Pienaar	ZS6OB	<a href="mailto:janpienaar@ananzi.co.za">janpienaar@ananzi.co.za</a>	012-345-1801	082-447-7823
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	Pieter Human	ZR6AHT	<a href="mailto:humanp@telkom.co.za">humanp@telkom.co.za</a>	012-800-2888	082-565-6081
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<b>RAE</b>	Brian Scott	ZR6BJS	<a href="mailto:scottbri@gmail.com">scottbri@gmail.com</a>	084-312-7407	
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<b>Morse testing</b>	Bill Ingleson	ZS6KO		012-331-2327	
<b>Tea</b>	Molly Peer	ZR6MOL	<a href="mailto:molly@peer.co.za">molly@peer.co.za</a>	012-333-0612	
	Doreen de Bruyn	ZR6DDB		012-803-7385	

## Minutes of the monthly club meeting of the Pretoria Amateur Radio Club held at the South Campus of the University of Pretoria on 3 May 2006

**Welcome:** The chairman Almero ZS6LDP declared the meeting open and welcomed all present.

**Attendance:** 19 members and visitors Hans vd Groenendaal ZS6AKV and Johan ZS6L. 10 apologies were received.

**Personal/Lief en Leed:** Stan ZS6SDZ is progressing slowly.  
Bertha lv van Hans ZS6KR se operasie gaan 12 Mei plaasvind.  
The SW of Martinho ZS6BQP had an operation.  
Nico ZR6VT se LV het haar knie ernstig beseer.  
Bill ZS6KO bly nou in Boksburg.

**Minutes of previous meeting:** The minutes were approved Proposed by Alf ZS6ABA and seconded by Brian ZR6BJS.

**Matters arising from the previous minutes:** none.

### Club Activities

**Rallies:** Die Tzaneen tydren vind 13-14 Mei plaas. KZN in Junie.

**Social/Sosiaal:** Johan ZS6JHB: Date for Day in the Sun – 11 June appears suitable.

**WATTS/kits/projects:** Nothing new – same kits still available.

**Finance/Clubhouse:** Richard ZS6UK: Finances satisfactory but subs need to increase to cover running costs.

**DF Hunt:** Saturday 20 May.

**Technical:**  
-Technical talk on 2m: Hans ZS6KR will host Monday evenings while Pine ZS6OB is on holiday.  
-The pros and cons of crowbar protection vs other means were explained on the request of a member.  
- Andre ZS6BRC wants a solution to getting rally data in real time over medium distances. Hi-tech would be Winlink or 3G. Who has time to look into this?

**Vlooiemark/Fleamarket:** Midwinter occasion on 1 July – start later at 10 AM due to cold morning weather

**Ham Diary/ Dagboek:** Various events up to 28 May were as listed on the Agenda.

**Club bulletin:** Rebroadcast Monday evenings 19:45

**General/Algemeen:**  
-Dankie aan Bill ZS6KO vir die skenking van nog items aan die vlooiemark.  
-Vince ZS6BTY presented large plots of the CSIR 2m repeater coverage with different antenna arrangements taking into account the effect of the tower itself on the radiation patterns. Thank you Vince for spending time to help the repeater team.

**Presentation / Aanbieding:** Hans vd Groenendaal ZS6AKV gave an interesting presentation and talk on the proposed second South African Satellite construction and payload temporarily named ZASAT. Currently a competition is running amongst the country's youth for a final name.

**Closing / Sluiting:** The meeting closed at 21:30

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**The Ark was built by amateurs – The Titanic by Engineers**

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# Editorial

Here is the spot where I must continually think of what to say that is relevant to the hobby and specifically for the coming month. An editorial must always provide some kind of criticism, admonishment, praise or pop up controversy for you to ponder.

Regarding the latter I wish to make an analogy between much discussed club/organizational membership and your citizenship in our country. Putting the effects of crime aside, you are a resident tolerant of your government, go about your business as always, and have voting power if you wish to change the powers that are, by way of numbers. Those that are dissatisfied with any chosen government now or ahead, can still live their lives and are not denied any of the privileges and services available.

And so it should be with us. You reside in your organizations and see Councils, Committees and Chairmen come and go. You must support their economy for the good of all and support movement toward better conditions. You don't emigrate out of the system to be a loner or go into hiding. If you do that, your very privileges and services will crumble due to lack of support to the higher echelons and thus break down their credibility.

The Amateur Radio Service must expand and the PARC must be a mainstay in this process. Members must have this common thread in their attitudes and put petty politics and personal differences aside – and certainly not air them in public. I hope this is still possible by showing your substance at our next AGM by making yourself available for our Committee and services where required.

## Redaksioneel

Dit is die plek waar ek gedurig moet dink wat ek gaan sê wat verwant aan die stokperdjie is en spesifiek vir die komende maand. Redaksionele inhoud moet altyd een of ander kritiek, waarskuwing, lofsange of 'n klip in die bos gooi om oor na te dink.

Met betrekking tot laasgenoemde wil ek graag 'n vergelyking trek tussen die veel besproke klub/organisasie lidmaatskap en jou burgerskap in ons land. As ons die effek van kriminaliteit buite agting laat, is jy 'n inwoner wat jou regering duld, jou sake besig soos altyd, en bemagtig is om jou stem te kan uitoefen in getalle om die huidige heerskappy te poog verander. Die wat ontevrede is met 'n verkose regering nou of later van tyd, kan nog steeds hulle lewens voortsit en is nie ontnem van enige voorregte of dienste wat beskikbaar is.

So moet dit ook met ons gaan. Jy beleef jou organisasies en sien hoe Rade, Komitees en Voorsitters kom en gaan. Jy moet hulle ekonomies ondersteun vir die welsyn van almal en ondersteuning gee aan bewegings na verbeterde toestande. Jy emigreer nie uit die stelsel nie of word 'n alleenloper wat wegkruip. As jy dit doen sal jou eerste voorregte en dienste verkrummel vanweë gebrek aan ondersteuning aan die hoër vlakke en dus hulle geloofwaardigheid afbreek.

Die Radio Amateur Diens moet uitbrei en die PARC moet 'n steunpilaar wees in die proses. Lede moet 'n gemene draad hê in hulle houding en kleinselige politiek en persoonlike verskille tersyde stel – en sekerlik dit nie in die publiek lug nie. Ek hoop dit is nog moontlik en wys dan jou staal by ons volgende AJV om jouself beskikbaar te maak vir ons Komitee en dienste waar benodig.

## Long Term HF Propagation Prediction for May 2006

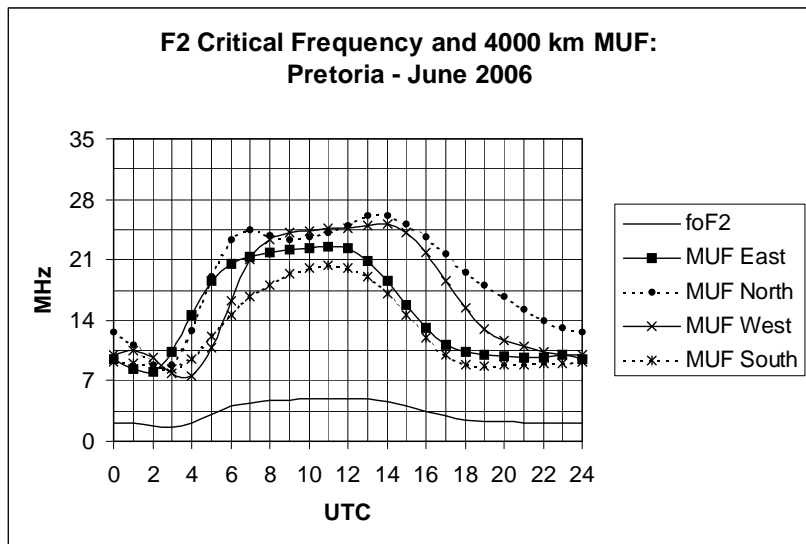
Vince ZS6BTY

### 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.



### ----- PRODUCTS AND SERVICES FROM OUR MEMBERS -----

**ICOM in Pretoria:** Pine ZS6OB has most of the whole ICOM line-up for demo/sale at his QRA. Phone 082-447-7823

**VHF/UHF antennas:** Pine ZS6OB builds to your requirements. Best performance and materials guaranteed.

**Battery condition indicator kits:** Roy ZS6XN has 3-LED indicator kits available at R20 each. Phone 012-547-0280

**Connectors and adapters, legal limit 40m traps, Nissei SWR/wattmeters and component bargains:** Hans ZS6KR always has stock. Also **Radio Protection kits:** Build this over-voltage sensing electronic circuit breaker into your 12V supply and prevent 12V radio burn-out in case of supply series-transistor failure.

New: 30A **Anderson powerpole connectors.** Phone 012-333-2612.

**J-poles 2m, 70cm:** Pieter ZS6PVW se netjiese 'J' antennas is nou al welbekend. Bel 012-386-4901.

## Birthdays

## Mei Verjaarsdae



- 05 Louie ZS6LVW
- 06 Simon ZS6AST
- 06 Herman ZS6SN (79)
- 07 Chantel, dogter van Martie en 'JB' ZR6YV
- 08 Ronel, sw van Pieter ZR6PSR
- 11 Nadia, daughter of Pat ZR6AVC and Frank ZS6GE
- 14 Attie ZS6REY
- 14 Hilary ZR6HAP, daughter of Molly ZR6MOL and Richard ZS6UK
- 15 Claire, sw of Robert ZS6ARC
- 17 Lynette ZR6LHT, dogter van Elize en Pieter ZR6AHT
- 20 Malcolm, son of Retha and Roy ZS6XN
- 22 Kalie ZS6KCS

May

## Anniversaries Herdenkings

- 07 May and Wally ZS5WP ( )
- 19 Sue ZS6SUE and Don ZS6CRT (29)
- 24 Marieta and Roy ZS6MI (35)
  
- 22 Richard ZS6UK
- 23 Annemie, dogter van Bernice en Pieter ZR6KSA
- 26 Pieter ZR6PSR
- 27 Emil ZS6EGB
- 27 Jac ZS6QA
- 27 Selma, sw of Joe ZS6TB

## Sick Parade | Krukkelys

- Bertha, lv van Hans ZS6KR is op 12 Mei suksesvol geopereer en is weer tuis.

## Welkom | Welcome

Nuwe lid Jaco ZR6JLL and new member Jay ZS6BUD.

## PARC Diary | Dagboek

- Jun** 03-04 PEARS Digital Contest
- 03-04 IARU Region 1 CW Field Day
- 10 Portugal Day contest
- 16 SARL Youth Day 0700-1100 UTC
- 17 All Asia DX Contest CW
- 18 Father's Day
- 23 Schools close
- 24 MRK fleamarket
- 24-25 ARRL Field Day 1800 UTC
- 24-25 HM of Spain Contest SSB 1200 UTC
- 25 SA Digital Contest
- 30 PARC and SARL FY ends
- Jul 05 PARC Club Meeting**

### Pay subs early and save.

Subs are bound to rise as the current R50 does not adequately cover running expenses. Payments made before the August 2<sup>nd</sup> AGM will still be R50 but after the AGM – who knows?

### Betaal ledegeld vroeg en spaar

Ledegeld sal moet verhoog word want die huidige R50 dek nie meer ons lopende onkoste nie. Vereffening voor die AJV op 2 Augustus sal bly op R50 maar daarna – wie weet?

Members who received trophies at the last AGM must please return them at our next meeting

## Snippets | Brokkies

- Pine ZS6OB became grandpa once more this month with a 5<sup>th</sup> granddaughter...
- Nico ZR6VT is besig om sy hele hok te herrangskik – Stuur ons later 'n foto Nico.
- Edwin ZR6ESP was the victim of a break-in and lost his laptop.
- We have at last found a suitable webpage host. Edwin still has to do the transfer from qsl.net and do various updates. Currently our webpage is very old. The old qsl.net/zs6pta site will in future point to the new location.
- Oom Bill ZS6KO has so far not been able to report in from Boksburg – probably still arranging the furniture.
- Ivor ZR6ICS has home-brewed a very impressive AM crystal-controlled transmitter for his upgrade to ZS status.



### RAE class for 32 officials of the Dept of Communication.

As part of the Kopanang Project the PARC will assist with the technical RAE lectures for these persons at their premises in Duncan street, Pretoria. Classes have commenced with Regulations and may last up to 20 weeks.

# ZS 6 PTA

1930-2006

Did TV kill the Radio Show? ( there is a pop song to that effect)

## Chairmans Letter

*Watts Nov 1975*

Once again, it is my sorry lot to have to request members to give more support to functions organised by your Committee, for without your support, the Branch can only wither and die. Take a look at events over the last three months. Attendance at meetings was a poor 17, a reasonable 40 and again a poor 29. Likely attendance at the Witbank mine - visit - ZILCH, leaving the organiser OM Bernie with stacks of uneaten food and beverages in his freezer, a DF hunt produced a fox and three hunters, whilst the very interesting lecture on TV by Mr Stevens of Tech was only moderately supported - about 12 persons in all attending.

Well OM's it's up to you. Do we go on organising functions and the like, or do we merely meet once a month to have a good old moan about how bad things are, and forget about lectures, film shows, visits etc? Has the advent of TV finally delivered the coup de grâce to ham radio activities? For believe me, there is a limit as to how much a Committee can organise if it does not enjoy the active (and I mean active) support of members.

May I ask you to do one small thing? Just ask yourself how much you as an individual have done in the last 12 months towards furthering your branch, and making it one of the most active Branches. There are some who can honestly say that they have contributed more than their fair share, but alas, too many of us must confess to the opposite. Even answering a bulletin roll call is too much fag for most of us.

So please OM's, give your Branch the support it deserves, so that an improvement becomes really apparent as it has with the Kyalami net - we had a full attendance on the 4th November, and I'm sure that we all had a really fb time - mini tnx Kyalami squad !

Hoping to see you all at the next meeting, and dont forget that 73 the SW's and YL's are all welcome !

73 *Harold*  
Harold ZS60T

## PRETORIA NOTES Aug 1948

The C.W. contest was poorly supported by the Pretoria Hams bct those who took part did very well.

6AK busy building and overhauling the rig had trouble with the final and modulator, now has it O.K.

6MC put in some hard work on the rig and a new antenna. Antenna O.K. Rig nit so O.K. yet.

6JW. Still on 10 meters does try 40 sometimes, has a penchant for the YLs.

6JU is still silent. Wat makeer — Albert.

6KO heard working the VK's on 10. What's up with the modulation O.M.

6GO silent but busy, has had illness in the family. Hope all are well now Mike.

6ET trying a new valve seems O.K. Richie, so does the new mike.

6HO busy building, you need a watch to help keep sked OM. Hi.

6KF sporting a new beam with all the gadgets, and a new flat top antenna both working well.

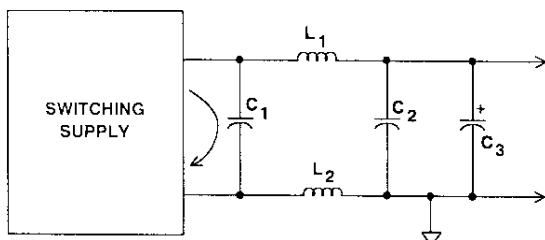
6GF has at last broken the silence, was actually heard on 40, must have got near the Jack at last.

## Phonetic Alphabet

by [Dr. Stephen Christopher Phillips](#), reproduced here *without* permission

Letter	NATO & International Aviation	British Forces 1952	RAF 1942-43	Telecom B	British A or International	NY Police	French	German
A	Alfa	Abel	Apple	Alfred	Amsterdam	Adam	Anatole	Anton
Ä								Ärger
B	Bravo	Baker	Beer	Benjamin	Baltimore	Boy	Berthe	Berta
C	Charlie	Charlie	Charlie	Charles	Casablanca	Charlie	Célestin	Cäsar
Ch								Charlotte
D	Delta	Dog	Dog	David	Denmark	David	Désiré	Dora
E	Echo	Easy	Edward	Edward	Edison	Edward	Eugène	Emil
É							Émile	
F	Foxtrot	Fox	Freddy	Frederick	Florida	Frank	François	Friedrich
G	Golf	George	George	George	Gallipoli	George	Gaston	Gustav
H	Hotel	How	Harry	Harry	Havana	Henry	Henri	Heinrich
I	India	Item	In	Isaac	Italia	Ida	Irma	Ida
J	Juliet	Jig	Jug/Johnny	Jack	Jerusalem	John	Joseph	Julius
K	Kilo	King	King	King	Kilogram	King	Kléber	Kaufmann
L	Lima	Love	Love	London	Liverpool	Lincoln	Louis	Ludwig
Li								
M	Mike	Mike	Mother	Mary	Madagascar	Mary	Marcel	Martha
N	November	Nan	Nuts	Nellie	New York	Nora	Nicolas	Nordpol
Ñ								
O	Oscar	Oboe	Orange	Oliver	Oslo	Ocean	Oscar	Otto
Ö								Ökonom
P	Papa	Peter	Peter	Peter	Paris	Peter	Pierre	Paula
Q	Quebec	Queen	Queen	Queen	Quebec	Queen	Quintal	Quelle
R	Romeo	Roger	Roger/Robert	Robert	Roma	Robert	Raoul	Richard
S	Sierra	Sugar	Suga	Samuel	Santiago	Sam	Suzanne	Samuel
Sch								Schule
T	Tango	Tare	Tommy	Tommy	Tripoli	Tom	Thérèse	Theodor
U	Uniform	Uncle	Uncle	Uncle	Uppsala	Union	Ursule	Ulrich
Ü								Übermut
V	Victor	Victor	Vic	Victor	Valencia	Victor	Victor	Viktor
W	Whisky	William	William	William	Washington	William	William	Wilhelm
X	X-ray	X-Ray	X-ray	X-ray	Xantippe	X-ray	Xavier	Xanthippe
Y	Yankee	Yoke	Yoke/Yorker	Yellow	Yokohama	Young	Yvonne	Ypsilon
Z	Zulu	Zebra	Zebra	Zebra	Zürich	Zebra	Zoé	Zeppelin

## SWITCHING SUPPLY DECOUPLING



$C_1$  MUST HAVE LOW INDUCTANCE AND BE CLOSE TO THE SUPPLY TO MINIMIZE HF CURRENT LOOPS AND RESULTANT HF MAGNETIC FIELDS

$C_2$  IS ALSO LOW INDUCTANCE,  $C_3$  IS ELECTROLYTIC

IF THE SWITCHING SUPPLY IS INTERNALLY GROUNDED,  $L_2$  SHOULD BE OMITTED

## FIGURE THIS ONE OUT

(part of instruction manual for Chinese manufactured MP3 player/memory stick/FM tuner)

- \* If the actual operations of your player is not the same as the instruction in this manual, please visit our website for latest product information.
- \* This machine packs into the battery the each opening the confidential waiting for the first time 10 seconds, need the machine from measure to complete to grow to press to open the machine key the square can show, the inconvenient place begs your pardon.

To simplify typographical problems we shall from now on use upper case symbols for all vectors and lower case for subscripts where needed. To further clarify why inductive and capacitive reactance can be represented by vectors  $+jX$  and  $-jX$  respectively, let us examine the voltage and current relationships:



**Fig.2 Pure inductance** Fig.3 Pure capacitance  
 In an ideal inductor the resulting ac current will lag the applied voltage by 90°. Taking current as a reference at 0° the inductive reactance (impedance) is

$$Z = +jV_L / I_L = +jX_L \quad [1]$$

Similarly from Fig.3 the capacitive reactance is

$$Z_C = -jV_C / I_C = -jX_C \quad [2]$$

Last but not least a resistor has its applied voltage vector on the same axis as the current and no imaginary values are involved.

**4. RL AND RC COMBINATIONS**  
 The following analyses are extremely important. Take a few minutes off to absorb this. There is no simpler way to explain these particular laws of Nature:

**4a. SERIES R AND L**

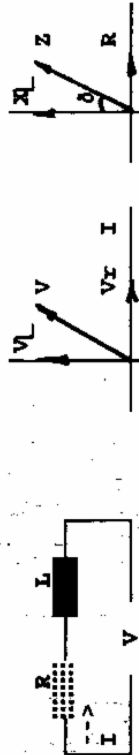


Fig.5 a,b,c (arbitrary scales)

The applied voltage is the vector sum of the voltage across R and L,

$$V = V_R + V_L = I \cdot R + I \cdot jX_L \quad [3]$$

dividing both sides of the equation by I yields vector impedance = vector sum of resistance + reactance

$$I = I_X + I_C = V/R + V/(-jX_C)$$

Dividing both sides of the equation by V yields the inverse relation

$$1/Z = 1/R + 1/(-jX_C) \quad [6]$$

vector admittance = vector sum of conductance and susceptance

NB: a capacitor has positive susceptance

**4d. OBSERVATIONS FROM ABOVE THEORY**

Although we have quite a way to go, some practical usefulness can already be drawn from the above results.

For instance, in (4a) the circuit can represent a lossy inductor where R is the total of ohmic and skin-effect resistances.

Good physical construction technique can make the R component very small but nevertheless quality is diminished from the ideal.

In radio work the term Q factor is commonly used to specify or characterize an inductor (coil) and is defined

$$Q = \frac{\text{reactance } X_L}{\text{losses } R} = \frac{2\pi fL}{R} \quad [7]$$

Similarly a capacitor has mainly parallel losses that can be represented as in (4d). R is obviously quite high but some current loss occurs and thus

$$Q = \frac{\text{susceptance } B}{\text{conductance } G} = \frac{R}{X_C} = \frac{R}{2\pi fC} \quad [8]$$

In industry the specification 'loss angle' is often used. This is the angle  $\delta$  shown in all diagrams above. Ideal components should have very small loss angles.

Using trigonometry on these diagrams it is easily seen that

$$\delta = \arctan(R/X_L) = \arctan(1/Q) \quad [9]$$

$$\delta = \arctan(G/B) = \arctan(1/Q) \quad [10]$$

**4e. IN SUMMARY**, we have now learnt how simple complex impedances are composed. The mathematics is simple algebra with a twist when a  $+j$  or  $-j$  quantity is involved. Do not forget that the actual circuit impedance is the vector sum i.e. resultant or modulus value which by Pythagoras is

$$|Z| = \sqrt{R^2 + X^2} \quad [11]$$

$$\text{or } |Y| = \sqrt{G^2 + B^2} \quad [12]$$

Next time we will discuss more complex circuits.

## Watch it!



Transmitter power watts	Minimum distance feet
5 — 25	100
25 — 50	150
50 — 100	220
100 — 250	350
250 — 500	450
500 — 1000	650

Fig. 1 — Table showing the minimum distance that should be maintained between an electric blasting cap and a radio transmitter.



### You might be an engineer if...

- You can't write unless the paper has both horizontal and vertical lines.
- You have more friends on the internet than real life.
- You always want to modify a good design.
- You think your PC looks better without the cover.
- Your wife has no idea what you do at work.
- You still own a slide rule and forgot how to work it.
- You buy electronic goods "as is".
- The sales people at hi-tech shops can't answer your questions.
- You don't have the heart to dump the electronic kit you got for your 9<sup>th</sup> birthday
- You are currently gathering components to build your own nuclear reactor.
- You think that when people around you yawn, they didn't get enough sleep.

1897 : "Radio has no future" ( Royal Society President Lord Kelvin )