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WATTS

02-2012

Year 82 + 2m

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



PARC, PO Box 12602, Die Hoewes, 0163, 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

Courtesy HF happenings:

Summary of 2012 Contest and Operating Activities			
20 to 22 January	PEARS VHF/UHF Contest	14 and 15 July	IARU HF Championships
25 January	SARL 80 m Club Sprint, CW	21 July	Winter QRP Sprint
28 January	Summer QRP Sprint	22 July	Boland ARC 40 m Sprint
4 and 5 February	AWA CW Activity	25 July	SARL Club Phone Sprint
11 and 12 February	SARL National Field Day	5 August	SARL HF Phone Contest
18 and 19 February	ARRL International DX CW Contest	9 August	SARL YL Sprint
26 February	SARL Digital Contest	18 and 19 August	International Lighthouse and Lightship weekend
3 and 4 March	ARRL International DX Phone Contest	19 August	SARL Digital Contest
4 March	SARL Hamnet 40 Metre Contest	26 August	SARL HF CW Contest
10 March	March Madness VL Sprint	1 September	ZS6JVT Spring 40 Metre Contest
10 and 11 March	RSGB Commonwealth Contest	15 to 16 September	SARL VHF/UHF/Microwave Contest
17 and 18 March	SARL VHF/UHF/Microwave Contest	24 September	Heritage Day Sprint
24 and 25 March	CQ WW DX WPX Phone Contest	26 September	SARL 80 m Club Sprint, digital
28 March	SARL 80 m Club Contest, digital	4 October	SARL 80 metre QSO Party
5 April	SARL 80 m QSO party	13 and 14 October	AWA AM and SSB Contest
7 April	RaDAR Contest	20 October	CQ Hou Koers
14 April	Autumn QRP Sprint	20 and 21 October	55th JOTA/ 16th JOTI
6 May	ZS3 Sprint	20 October	Spring QRP Sprint
12 and 13 May	AWA AM and SSB Contest	27 and 28 October	CQ WW DX Phone Contest
20 May	ZS4 Sprint	3 November	RaDAR Contest
26 and 27 May	CQ WW DX WPX CW Contest	11 November	PEARS HF QSO Party
27 May	SARL Digital Contest	17 and 18 November	SARL National Field Day
30 May	SARL 80 m Club Sprint, CW	24 and 25 November	CQ WW DX CW Contest
16 June	SARL Youth Day Sprint	28 November	SARL 80 m Club Sprint, CW
17 June	World QRP Day	2 December	SARL Digital Contest
21 to 25 June	SARL Top Band QSO party	8 and 9 December	ARRL 10 Metre Contest

In this issue

- Member news and activities Lede-nuus en Aktiwiteite
- Two Yaesu announcements
- Technical | Solar regulator | It's about time
- Page eight | Bladsy agt

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	

Co-opted/Geko-opteer:

Auditor	Elma Basson				
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	craigsym@hotmail.com	081-334-6817	
Clubhouse	Pending				
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	

NOMINATIONS FOR SARL AWARDS (email now to address below)

Members and clubs are again invited to submit nominations to Council for the following SARL awards:

Honorary Life Membership - the SARL's highest honour.

Willie Wilson Gold Badge

For the amateur that gave exceptional and meritorious service to the League.

Jack Twine Award

To recognise qualities such as unselfishness, clean operating and a genuine interest in Amateur Radio and its affairs. This prestigious Award will be made to Amateurs who, in the opinion of their fellow amateurs and the League's Council, exemplify the qualities desirable in a Radio Amateur.

Arthur Hemsley 2 metre Trophy

For a Radio Amateur for his/her individual achievements with transmissions in the 2 metre amateur band. This award is made for extraordinary performance on EME or modes such as tropospheric propagation. It is not for the longest distance worked but rather for persistence in achieving something special on 2 metres.

Barney Joel Trophy

For any member of the SARL for the best performance during the year whilst working HF mobile. This award could be made for performance by an individual in rally or other public event communication etc.

Icom Excellence Award

This award is bestowed annually on the amateur who through his/her activity in the Amateur Service has brought international recognition to South Africa by either the achievement of a VHF/UHF long distance record which is internationally recognized by the IARU, or by service to the Republic of South Africa or the SARL in the field of scientific research using the amateur spectrum, or in promoting the amateur service internationally or as Council may determine from time to time.

Joseph White Plaque

For any member of the SARL for exceptional achievements in the 432 MHz band during the past year. This is not awarded for the longest distance worked, but for all round achievements.

Bert Buckley Six metre Trophy

For any radio amateur for his/her individual achievements with transmissions in the six metre amateur band. This award is not for the longest distance worked but for outstanding work or activity on six metres.

Nominations can be sent by email to secretary@sarl.org.za. Please do it without further delay BEFORE 31 January.

Birthdays Verjaarsdae

Feb.



- 01 Pieter ZS6SPY
- 03 Willie ZR6WGR
- 03 Nico ZS6AQ
- 06 Ellen, sw of Joe ZS6AIC
- 09 David, son of Ellen and Joe ZS6AIC
- 09 Kenny ZS6KMM
- 10 Paddy, sw of Kenny ZS6KMM
- 11 Nina, Sw of Edwin ZR6ESP
- 12 Yvette dogter van Rika en Errol ZR6VDR
- 13 Sander ZS6SSW
- 15 Phil ZS6PHL, sw of Craig ZS6RH

Anniversaries Herdenkings

Feb.

- 03 Heather and Vince ZS6BTY (22)
 - 18 Sarina en Willie ZR6WGR (12)
 - 27 Paddy and Kenny ZS6KMM (47)
 - 28 Martie en 'JB' ZR6YV (36)
 - 28 Phil and Craig ZS6RH
-
- 16 Pat ZR6AVC, sw of Frank ZS6GE
 - 20 Ivo ZS6AXT
 - 22 Christopher, Son of Joey and Graham ZS6GJR
 - 23 Peter ZS6PJ

Joys and Sorrows | Lief en Leed

Suzette ZS6SZT, dogter van Pieter ZS6PVW en Magda ZS6MWW, het vandag (Donderdag) haar matriekuitslae gekry. Sy het goed geslaag en 5 onderskeidings gekry. Dit maak haar 'n rekord houer vir Elandspoor Hoër Skool, want sy is die eerste matriek leerling wat soveel onderskeidings gekry het in die skool se bestaan. Die vorige rekord was 4 onderskeidings. Sy het ongelukkig vir Engels tweede taal 78% en Verbruikerstudie (Huishoudkunde) 79% gekry, anders kon sy 7 onderskeidings behaal het. Sy sluit dus haar hoërskool opleiding op 'n hoë noot af. Sy beplan om later die maand IT te studeer by Belgium ITversiteit in Pretoria Noord.

Diary | Dagboek (UTC times)

Feb.

04-05 AWA CW activity day

11-12 SARRL HF Field Day

- 11-12 Dutch PACC Contest 12:00-12:00
- 11-12 CQ WW RTTY WPX Contest 00:00-24:00
- 18-19 ARRL Inter. DX Contest CW 00:00-24:00
- 24-26 CQ 160-Meter Contest SSB 22:00-21:59
- 25-26 REF Contest, SSB 06:00-18:00
- 25-26 UBA DX Contest CW13:00-1300
- 26 SARRL Digital Contest**

Nuwe lid: welkom **Schalk van Vuuren ZS1LL** in Hermanus



Snippets | Brokkies

Chris ZS3B/ZS6BGH seTukkies gestrand

Hy het na 'n vriend Dawid op sy plaas gaan kuier tussen Loxton en Carnarvon.

Die foto is geneem een kilometer van Dawid se huis en Tukkies het so vasgeval dat Dawid hom nie met sy TATA (wat KAKA gespel word) kon uitsleep nie en toe val hy ook vas. Gevolglik moes hy 'n trekker laat kom om al twee uit te sleep.

"Die oggend het 28 mm reën geval maar nodeloos om te se het ek besluit om te ry want ek wou hom verras. As ek nie die omgewing geken het nie is dit verstaanbaar, maar ek het vir twee jaar op die plaas gewoon en moes van beter gewoet het"

Will D-star be surpassed?

Read of the latest thinking and plans at Yaesu

Yaesu announces The Dawn of Digital Communications in the Amateur Radio World

"2012 will be a historic year that sees Yaesu lead Amateur Radio into the modern era of Digital Communications"

You can download the PDF copy of the Yaesu discussion of modern Digital Communications - "A Digital Communications Guide for Amateur Radio Operators" from the link below. (7Mb)

<http://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=111&encProdID=8B1A771611E9963B6AB769C0EC0F6B68&DvisionID=65&isArchived=0>



Roger ZS6RJ at leisure

"I've been away for around a month travelling in various reserves from Kruger in the North to Pongola and Swaziland toward the east- taking a break and doing some wildlife photography (the "other" big hobby).

Also did some great tiger fishing at Jozini Dam both in Swazi and South Africa for a week, trying to keep the fingers important for CW out of range of their teeth, hi".

Reading to the blind: Antoinette ZS6D

will recommence reading to the blind and incapacitated persons from Tuesday 24 January and every Tuesday

thereafter at 15:00 SAST on 7070 kHz as before. She apologizes for the long break but her health is now sufficiently restored to recommence this service. Report-ins and special requests for literature will be welcome.



December 27, 2011

Dear Amateur, Marine and Air-band Valued Customers:

We would like to thank all of our valued customers for your continued support. In this letter, I am pleased to announce a recent corporate reorganization. After four years of joint venture with Motorola, we have decided to transfer the Vertex Standard LMR business to Motorola and focus on Amateur, Marine and Air-band business. The effective date for this reorganization will be January 1, 2012.

Our company name will once again be YAESU MUSEN; a name our business partners have been familiar with for over 50 years. We are delighted to bring you the legacy of trust, quality, and solid customer service that has always been associated with the YAESU MUSEN company name.

This reorganization will allow us to concentrate in Amateur, Marine and Air-band business, which will better leverage and align the strengths of our entire business operation. We believe that there is an exciting opportunity to evolve our organization to meet the needs of the Amateur Radio, Marine Equipment and Air band communication industries by continuing to provide specialized services and the highest quality products. We are excited to continue working hard to support your business.

Details of the new operation include:

- Our headquarter company name will change to YAESU MUSEN Co., Ltd and the US subsidiary will be YAESU USA Inc.
- Company is wholly-owned by Founder's family
- New Headquarter address and phone/fax number will be:
Address: Tennouzu Park Side Building 2-5-8 Higashi-Shinagawa, Shinagawa-ku, Tokyo
Phone Number: +81-3-6711-4151 Fax Number: +81-6711-4277
- No change in operation, sales organization, address and phone number of YAESU USA Inc.
- The new operation will be effective from January 1, 2012
- Our new Brand Logos will gradually begin to appear on our web site and printed materials

YAESU
The radio

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Please note that there is no change in the existing Senior Management Team that will continue to support your business.

- Dennis Motschenbacher leads Amateur Sales Division.
- Jason Kennedy leads Marine and Air-band Sales Division.

Should you desire additional information, please feel free to contact them.

Thank you for your loyalty and support. We are glad that you will be there with us as the new operation unfolds. Our team of enthusiastic Design, Production, Sales, Customer Service, and Repair professionals look forward to servicing you long into the future.

Sincerely yours,


Jun Hasegawa
President/ CEO
VERTEX STANDARD CO., LTD.

Solar-powered regulator charges batteries efficiently

by G. J. Millard
Volcanological Observatory, Rabaul, Papua New Guinea

For use with solar panels, this simple and efficient regulator circuit provides an energy-saving solution to charging batteries of the lead-acid type commonly found in automobiles. Not considering the cost of the solar cells, assumed to be at hand for use in other projects, the regulator alone is under \$10.

Unlike many other shunt regulators that divert current into a resistor when the battery is fully charged, this circuit opens the charging path so that the resistors can be eliminated. This method is extremely advantageous when solar panels are used, for large resistors would otherwise be required to dissipate the high power levels typically encountered.

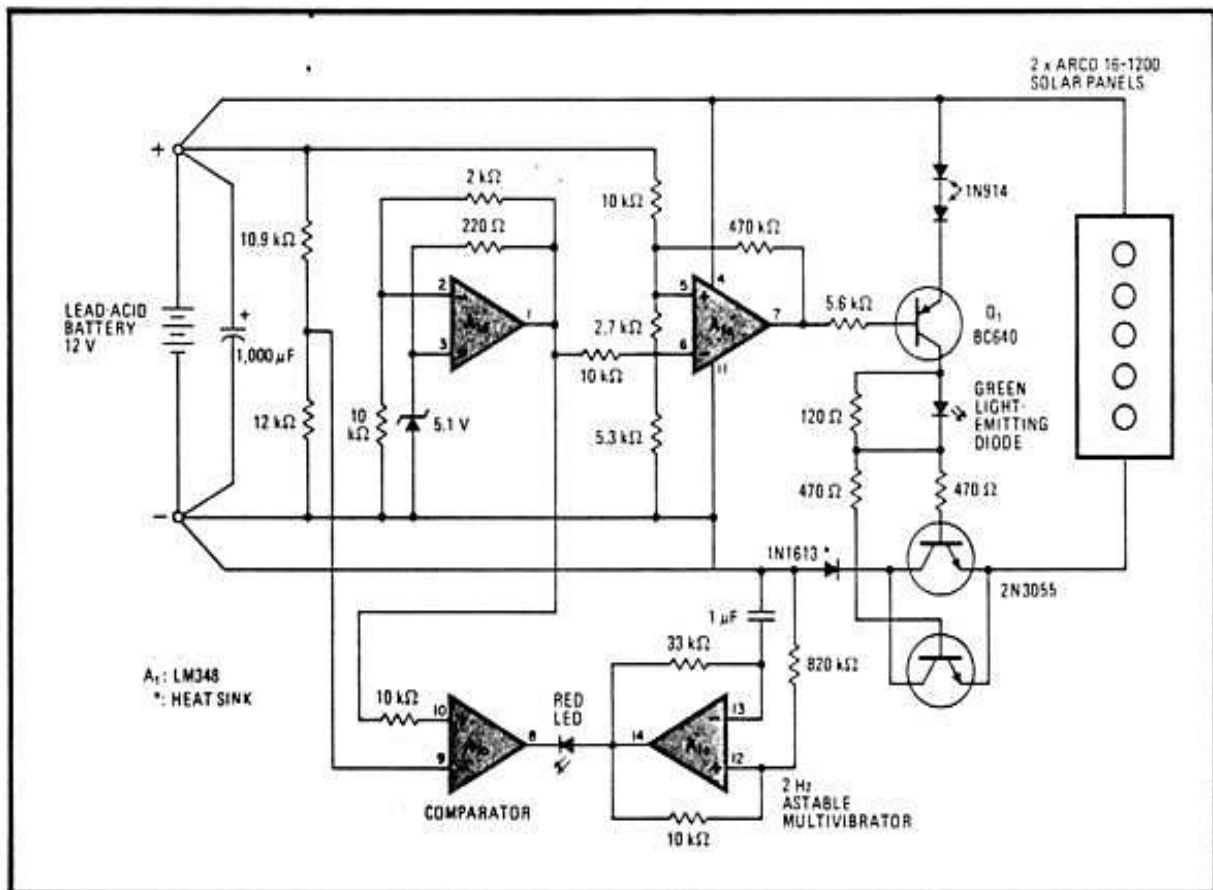
When the battery voltage, e_b , is below 13.5 volts

(normally the open-circuit potential of a 12-v battery), transistors Q_1 , Q_2 , and Q_3 turn on and charging current flows from the solar panels as required. The active green light-emitting diode indicates the battery is taking charge.

As e_b approaches the open-circuit voltage, op amp A_1 switches Q_1 - Q_3 off. This condition is maintained until such time as the battery voltage drops to 13.2 v, whereupon the charge cycle repeats.

If the battery voltage should continue to fall from 13.2 to approximately 11.4 v, indicating a flat battery, A_1 switches low, causing a red LED to flash at a rate determined by the astable multivibrator A_2 , in this case oscillating at a frequency of 2 hertz. A_2 provides a reference of 6 v to maintain the switching points at the 11.4- and the 13.2-v levels.

The circuit will handle currents to 3 amperes. To draw larger currents, it is necessary to increase the base currents of Q_2 and Q_3 so that these transistors will remain in saturation during the charging periods. □



Light charge. Regulator for handling currents produced by solar panels charges lead-acid batteries without wasting excessive power. Circuit cuts off current to battery when its open-circuit voltage is greater than 13.5 v, eliminating need for dissipating power in resistors. Green LED indicates battery is charging. Flashing red LED indicates battery is flat (battery voltage below 11.4 v) and refuses to take charge.

Editor's note: The 13.5V mentioned above can be increased for the more modern batteries by removing the 2.7k and 5.3k resistors and replacing them with 5.6 and 1.8k resistors for a 14.1V maximum level. Similarly the 12k resistor can be lowered to set the flat battery level a little higher.

This circuit is a linear circuit and should not cause RFI as do (albeit more efficient) switching regulators. Another useful linear circuit (still in use by your editor) was published in WATTS 4-2004.

IT'S ABOUT TIME

From a 1996 article in "Topical Time"

Edited by ZS6KR

Time - Everyone takes it for granted.

We are so accustomed to our system of telling time that few people realize that time, as we know it today, was INVENTED.

Primitive man never gave time a thought. As he changed from a hunter to a hunter-gatherer as well as practising agriculture, he had to remain in one place for periods of time. The activities of planting and harvesting were events that were separated by a certain number of risings and settings of the sun. When he began to keep track of this the first primitive calendar was developed.

Early calendars were based on the lunar cycle of 29,5 days. The months consisted of 29 or 30 days alternately, giving a year of 354 days.

By 4000 BC the Egyptians had established a solar base year of 365 days consisting of twelve 30-day months and 5 feast days at the end of the year.

In 46BC Julius Ceasar and Alexandrian astronomers developed the calendar which, with a few changes, we use today. The beginning of the year was changed from March to January and the months were alternatively given 31 or 30 days except for February which was given 29 or 30 days in a leap year.

Some of the old Roman names for the months were retained but Quintilius became July after Julius Ceasar. Later Augustus Ceasar changed Sextilius to August and took a day from February so that this month would be as long as that of Julius.

Pope Gregory XII changed the calendar in 1582. A small error in 1600 years resulted the equinox to be on March 11 instead of 21. Ten days were dropped from the Julian calendar so as to bring it into line with the seasons.

Only in 1752 did England and the American colonies adopt the Gregorian calendar at which time it was necessary to drop 11 days. In 1918 Russia and Romania adopted it losing 13 days.

In 1583 Joseph Justice Scaliger developed a system whereby days were counted instead of years which is still used by astronomers. Called the Julian day count (after his father Julius Ceasar Scaliger) it has as its beginning the day that the Julian calendar, the lunar calendar, and the Roman tax system (which had its own calendar), all coincided.

Day 1 was calculated to have occurred on January 1, 4713 BC. Many other calendars are in still in use today. The Chinese calendar which is like the lunar calendar, has extra months added at fixed intervals to bring the lunar and solar years into alignment. Each year has both a number and a name. 1996 or 4633 Chinese was the year of the rat.

The same year September 14 in Israel was new year's day and marked the beginning of 5757 on the Jewish calendar. Being a combination of lunar and solar calendars, extra periods are added to keep the solar and lunar years in alignment.

The Islamic calendar is lunar based. The months therefore do not keep a constant relationship with the solar year and occur 10 or 11 days earlier than the year before. The first year of Islam is AD 622, the year of Mohammed's migration from Mecca to Medina. Depending on where you live in the Islamic world the year 1999 is either AH 1377 or AH 1416.

The Hindu calendar contains some aspects of both the lunar and solar calendars. Three of their holidays are based on the solar calendar and the remainder are lunar based. The 'week' by which most of our activities are regulated, is an entirely social time division.

Today, throughout most of the world, the week consists of a repetitive cycle of seven days. The Romans had weeks of eight days; the Chinese one of ten days and so it varied amongst the various societies.

The period from one sunrise to another became the basic unit of time. As our knowledge of the earth's rotation increased it became practice to reckon a day as the time between two successive transits of the sun with the local meridian. This gave us a day that was almost constant in length (the solar day). Seasonal differences in the length of day were compensated for by averaging to make the mean solar day. Custom decreed that this transit time was 'noon' and came as close as possible to 12 o'clock. This resulted in a multiplicity of local time zones throughout the world. Since people never travelled more than 40 km from their place of birth, nobody gave the time differences any thought.

Enter the Railways. With rapid travel across the country came the realization of the problems created by all these local time zones. When it was 12:00 in Chicago it was 12:13 in Cincinnati. There were at least 75 different times used by the US railways. A traveller going from Halifax to Toronto on the newly opened Intercolonial Railway had to change his watch five times.

The English solved the problem on December 6, 1843, when after almost 20 years of discussion led by Sir John Herschel they adopted the time at the Greenwich meridian (GMT) as standard time throughout England, Scotland and Wales.

From 1860 time became the subject of widespread discussions as prestigious societies and learned men sought a solution to the problem posed by thousands of local times around the world. Being most affected by this problem, the railways were most active in seeking a solution - many were proposed.

In 1868 Sanford Fleming suggested that the globe be divided into 24 zones of 15° differing from each other by one hour. He also pointed out that such a system would need a starting point: a Prime Meridian from which time would be reckoned.

Not everyone agreed. The Astronomer Royal said: "No practical man ever wants such a thing". The Astronomer Royal of Scotland said: "Mr Fleming seems to know perfectly well that in making such a proposition he is running full tilt against common sense and universal experience".

No one was willing to take a first step. Bowing to pressure from the railways, the American government convened the International Prime Meridian Conference in October 1884. The 25 nations attending agreed to adopt the Greenwich Meridian as the standard against which all other clocks would be set.

Canadian and American railways did not wait for governments to deal with the proposals. The General Time convention in Chicago, 1883, adopted "Standard Time". Their plan provided for 5 time zones, known as Intercolonial Time (now Atlantic Time) and Eastern, Central, Mountain and Pacific time; the latter being 4, 5, 6, and 7 hours behind GMT. This came into effect on Nov. 8, 1883.

Universal Standard Time became a fact of life on Jan 1 1885. Newfoundland and Canada's east coast used 3½ hrs behind GMT. In practice, time zones rarely followed their longitudinal boundaries. They followed provincial or state boundaries or waterways and have a habit of jogging east or west, usually for no apparent reason.

The International Dateline IDL on the meridian 180° from Greenwich is the point on earth where the date advances one day and Monday becomes Tuesday at midnight. At this time it is noon at Greenwich. The IDL deviates somewhat from 180° to avoid passing through any large land mass.

TIMEPIECES:

The first clocks using geared wheels appeared around 1000 AD. They were clumsy affairs and mainly used in monasteries to ring bells for the various services.

About 1500 AD Peter Heinlein invented the pocket watch. It was an inaccurate device but improvements were made. Later Beaumarchant invented the escarpment mechanism, Robert Hooke the spring balance and John Harrison the temperature compensated balance wheel. Together these make reliable clocks and watches capable of measuring time to one-tenth of a second.

The use of a pendulum was suggested in 1582 by Galileo. In 1656 Christiaan Huygens made the first pendulum operated clock. It was very accurate at the latitude it was set, and for the first time the second became a measurable unit.

Maritime nations were interested in accuracy in order to determine longitude at sea. With an accurate time-piece set to GMT it was possible to find longitude once you had determined the local time.

Harrison built the first chronometer accurate enough to measure longitude within one mile and won him the British Admiralty prize of 20.000 pounds.

It took him 20 years to perfect this timepiece and about 17 more to collect his prize.

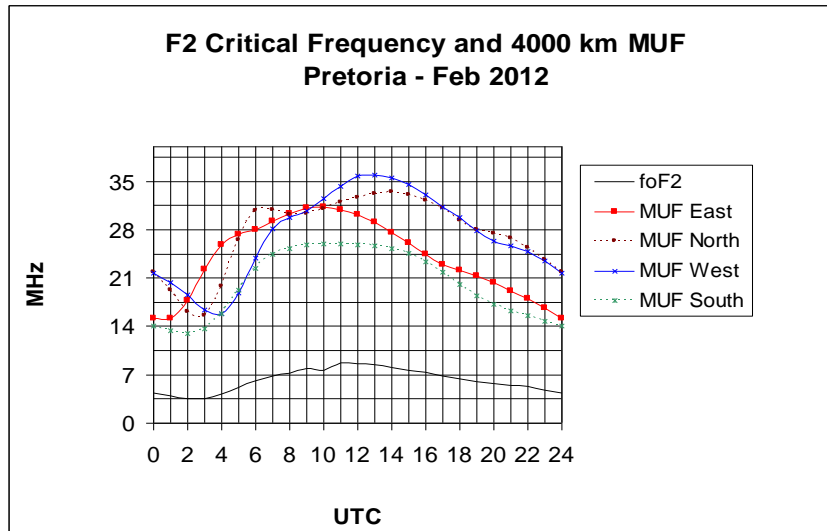
Science has eventually advanced to make very short periods measurable. The millisecond, microsecond and nanosecond are now commonly used in various disciplines and events.



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Long Term HF Propagation Prediction for Feb 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.

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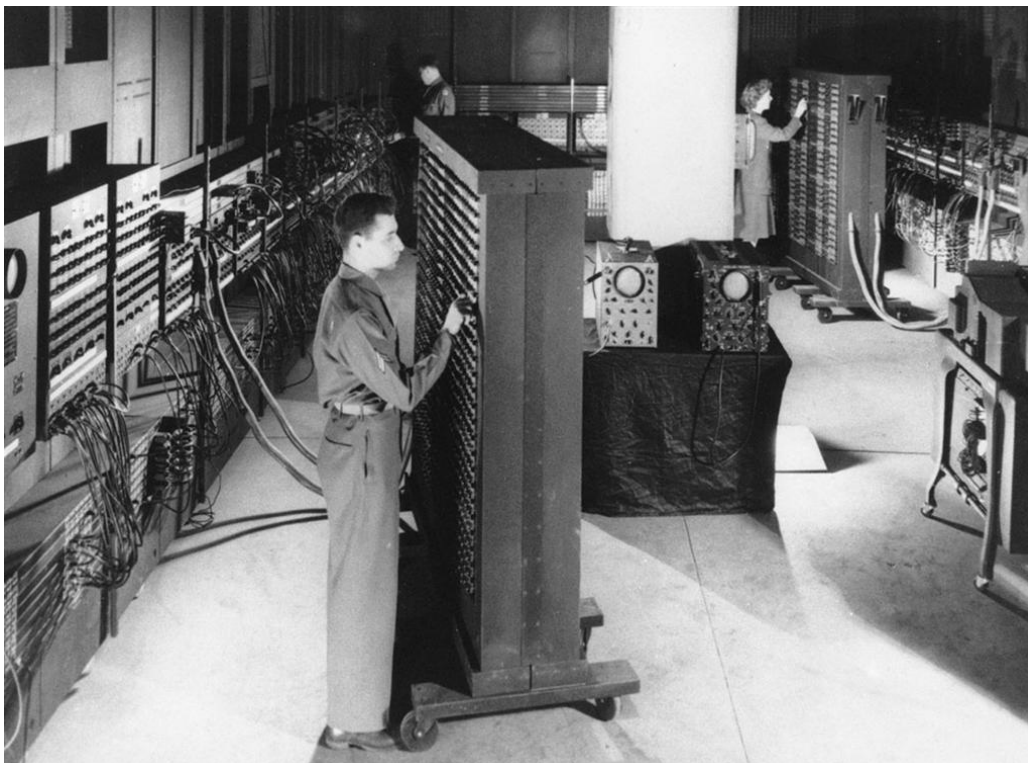
aesham@telkomsa.net



CABLE & INTERCONNECT SOLUTIONS FOR TELECOMS, BROADCAST AND MIL/AERO MARKETS



CUSHCRAFT CORPORATION



This 1946 photograph shows ENIAC (Electronic Numerical Integrator And Computer), the first general purpose electronic computer - a 30-ton machine housed at the University of Pennsylvania. Developed in secret from 1943, ENIAC was designed to calculate artillery firing tables for the United States Army's Ballistic Research Laboratory. The completed machine was announced to the public on February 14, 1946. The inventors of ENIAC promoted the spread of the new technologies through a series of influential lectures on the construction of electronic digital

computers at the University of Pennsylvania in 1946, known as the Moore School Lectures.