



ZR6FD logo

Drukwerk ZS6RH
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WATTS

11-2012

Year 82 + 11m

Monthly newsletter of the Pretoria Amateur Radio Club
Maandelikse nuusbrieff 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

Your weekly EME bulletins come from here.

ZS6OB Icom Hamshack



In this issue

- Member news and activities Lede-nuus en Aktiwiteite
- Technical | Digital modes frequency list
- | Mobile Radio Regulation 308A
- | Lead-acid battery desulphator
- Page eight -- Bladsy agt

In hierdie uitgawe

Next fleamarkets and socials 2012

Tentative 8 Dec.
Venue: PMC,
Silverton

Club meeting:
Thursday 1 Nov
U.P. Clubhouse

PARC Management team / Bestuurspan Aug. 2012 – Aug. 2013

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Club members are invited to the following Digital Mode Frequencies

SSTV: 3.730, 14.230, 21.340, 28.680 kHz **USB**

DIGSSTV: 3.733, 14.240 kHz **USB**

PSK31: 1.838.15, 3.580.15, 7.040, 10.140, 14.070.15, 21.080.15, 28.120.15 kHz **USB**

PSK63: 14.072 kHz **USB**

PSK31FEC: 14.074, 14.075 kHz **USB**

MT63: 3.596, 14.109.5, 21.120, 28.130 kHz **USB**

RFSM8000: 3.590, 3.740, 14.109 kHz **USB**

FDMDV: 14.236 **USB**

MFSK: 1.838, 3.580, 7.037, 14.080, 21.080, 28.080 kHz **USB**

OLIVIA: 3.585, 7.038.5, 14.075.65, 14.104.5 to 109.5 kHz **USB**

ROS: 14.103 **USB**

PACTOR I FEC: 14.074 to 14.076 kHz **USB**

JT65A: 14.076 **USB**

FSK441-JTMS: 144.370 **USB**

WSPR: 7.0387, 10.1387, 14.0957 kHz **USB**

Birthdays Nov Verjaarsdae



Nov Anniversaries Herdenkings

03 Blaine, son of Heather and Vince ZS6BTY
 06 Solly ZS6SV
 07 Andrew, seun van Lynn en Andre ZS6BRC
 10 Luther ZS6E (96)
 11 Peggy, sw of Ed ZS6UT
 12 Emmerick, seun van Erna en Whitey ZS6JJJ
 12 Fritz ZS6SF
 16 Jean, dogter van Lynn en Andre ZS6BRC
 16 Vlasta, ZS6-2501, sw of Ivan ZS6CCW
 19 Joe ZS6TB
 22 Chris ZS6BGH/ZS3B

04 Estelle en Simon ZS6AST (40)
 05 Nina and Edwin ZR6ESP (2)

22 Caitlin, daughter of Heather and Vince ZS6BTY
 25 Gordon ZS6AGV
 25 Tony ZS6CRO
 26 Bridge ZS6BJM (81)
 27 Janice, dogter van Ellen en Joe ZS6AIC
 27 Karin, sw van Sarel ZS6EK

Lief en Leed | Joys and Sorrows

Bridge ZS6BJM se LV herstel goed na 'n beroerte.
John ZS6JAO 's SW was in hospital.
Magda ZS6MVW was kortliks in die hospitaal

Nuwe lid

Welkom aan Nico Swart van Silverton Ridge wat onlangs sy RAE geskryf het.

Diary | Dagboek (UTC times)

Nov.

04 DARC 10m Digital Contest 11:00-17:00
 10-11 WAE RTTY DX Contest 00:00-23:59
 10-11 JIDX Phone Contest 07:00-13:00
 10-11 OK/OM DX Contest 12:00-12:00
 16 YO International PSK31 contest 16:00-22:00
 17-18 SARL Field Day contest 10:00-10:00
 17-18 LZ DX Contest 12:00-12:00
 24-25 CQWW DX CW Contest 00:00-24:00
 30-Dec02 ARRL 160m Contest 22:00-16:00

PARC meeting 1 Nov 19:00

Vincent ZS6BTY will discuss antennas for HF DXing specifically on 10-20m but will touch on 40-160m as well.
 The discussion will be around the effect of antenna height on the angle of radiation, why it matters and what is practically achievable. Finally he will touch on what sloping ground around the antenna can do for you.
 Anyone is welcome.
 The talk will start at 19:30.

Snippets | Brokkies

NB: PARC committee meetings take place every 2nd Thursday evening at 7pm. Any member is invited to attend either as a backbencher or participant with positive input.

DXpedition to Lesotho: 23 November – 3 December

Roger ZS6RJ reports the following operators will be active :

Donovan, [ZS2DL](#) (CW); Mitch, [ZS2DK](#) (SSB, RTTY); Roger, [ZS6RJ](#) (CW)

Jo, [DJ3CQ](#) (CW); Chris, [DL2MDU](#) (CW); Emil, [DL8JJ](#) (CW)

Frosty, [K5LBU](#) (SSB, RTTY); Keith, [VE7MID](#) (CW); Neil, [VA7DX](#) (CW)

"We're still finalizing equipment, but it will be a mix of IC-7600, Elecraft K3's on the radio side and IC-PW1's / Expert 1KA and 2KA / Elecraft KPA 500 linears, with antennas being Tennadyne T6 Log periodic, a spiderbeam and a hexbeam with a mix of verticals and a battlecreek special for low bands. Quite an arsenal..."



Radio Equipment in your vehicle & roadblocks

It has been brought to the attention of HAMNET that on occasions, either Hamnet members or normal radio enthusiasts have had a bit of an altercation with roadblocks on our national roads.

Members of SAPS or Provincial Police have been rather 'difficult' in their conversations and demanding documentation and authority to 'have radios in your car'.

Francois ZS6BUU will be discussing this issue with the SAPS at the SASAR conference which is taking place this month – and if necessary he will take it further up the line of authority with SAPS to ensure we get clearance on this issue!

In the mean time, Francois having been on the road for many years, the safest scenario is to have a certified copy of your **current ICASA licence** with you, and if available, your original license to operate amateur radio.

Please also ensure that your call sign, as it appears in your certificate, is visible on your mobile equipment.

What he also suggests – especially for those constantly on the road with equipment in their vehicles; have a copy of **Regulation 308 A** in your possession to show any official that 'land mobile vehicles' are allowed to carry radio equipment and are exempt from the restrictions related to cell phones.

He suggests you have a clearly marked envelope in your cubby hole specifically designed to carry all the documentation needed to establish your credentials!

Cell phones are totally another issue so please do not hold your hand held in your hand when driving – this is courting disaster as no official will know the difference between a cell phone and a two way radio!

Government Gazette

Vol. 423, No. 21569, 22 September 2000

Regulation Gazette, No. 6882

No. R. 941

NATIONAL ROAD TRAFFIC ACT, 1996 (ACT NO. 93 OF 1996)

AMENDMENT OF THE NATIONAL ROAD TRAFFIC REGULATIONS

The Minister of Transport has under section 75 of the National Road Traffic Act, 1996 (Act No. 93 of 1996), made the regulations in the Schedule.

SCHEDULE

Definition

1. In this Schedule "the Regulations" means the National Road Traffic Regulations published in Government Notice No. R. 225 of 17 March 2000, as amended by Government Notice No. R. 761 of 31 July 2000.

Amendment of regulation 308A of the Regulations

2. Regulation 308A of the Regulations is amended by the substitution in subregulation (3) for paragraph (b) of the following paragraph:

"(b) the phrases "cellular or mobile telephone or any other communication device" and "cellular or mobile telephone or other communication device", **excludes land mobile radio transmission and reception equipment operating in the frequency band 2 megahertz to 500 megahertz that is affixed to the vehicle or is part of the fixture in the vehicle.**"

Insertion of regulation 343C in the Regulations and Validation of things done by local authorities

3. blah blah ...

Short title

4. These regulations are called the Second Amendment of the National Road Traffic Regulations.

Contesting tips It's that time of year again with 48hr contests -

90 minutes - this is the length of a typical human sleep cycle.

From the first loss of consciousness, through rapid-eye-movement (REM) deep sleep, and back to shallow sleep.

Timing your contest naps to last for about 90 minutes avoids the grogginess of being awakened mid-cycle.

This eham.net article <http://www.contesting.com/articles/37?cookietest=1> by K5ZD goes in to some detail about how to manage those all-important mid-contest ZZZZs - and we are not talking about South Africa!

Be Nice To The Moon (and Mars)

by [Robert Krulwich](#) (eham.com)

All over the world, ham radio operators and Morse code enthusiasts beam dot, dash messages straight at the moon, then wait 2.7 seconds for the signal to bounce back. They call these "E.M.E." transmissions, which stands for "Earth-Moon-Earth" or — more popularly — "moonbouncing." I suppose it's fun to smack little beeps against a sleepy rock 239,000 miles away and have those beeps come flying back at you. Plus, it's easy.

Moonbouncing With The Morse Resource

Anybody with a good transmitter and an antenna "capable of being rotated in both the azimuth and elevation planes" can bounce messages off the moon. You don't even have to know Morse code. There's a shortcut. Just type your message ("Happy Birthday, Munchkins!") onto a screen at [The Morse Resource](#) and in less than a minute they translate it into long and short beeps you can

hurtle moonward.
The moon must be twitching!

Beethoven's Sonata In Morse Code

Not so long ago, a Scottish artist, [Katie Paterson](#), turned Beethoven's Moonlight Sonata into Morse code (yup, you can do that, too) and bounced it off the moon. Some musical phrases got trapped in moon craters and didn't come back, which she found so intriguing, she put the ricocheted, fragmented Moonlight Sonata on a player piano and you can now see her moonbounced, Morse-coded piece being not performed by anyone, the keys going up and down on their own, on [YouTube](#).



The latest took place in the dirt of Mars itself. A few weeks ago, NASA began testing its newest rover, Curiosity. They turned it on and let it move a little, and it turns out

Curiosity's wheels have little grooves in them that are dots and dashes of Morse code, spelling J ... P ... and L ... for Jet Propulsion Laboratory. You can see them here.

[NASA/JPL-Caltech](#) picture.

Why dig Morse-coded signals into the soil on Mars? So that NASA can look down from orbiters above and measure how far the rover has gone.

Every time they see a new "J", "P" and "L" in Morse, they know the rover has moved a full turn of its wheels, which is a specific distance. It's like a measuring stick.

Lead-Acid Battery Desulfator

by Alistair Couper

from *Home Power* #77

Ed: Article abridged from three pages and the gist extracted. Note the author lives off-grid and has no generator)

It is not true that a big battery bank is better than a small one. An oversized battery bank can be almost impossible to charge properly. Without a minimum daily exercise regimen it can become the equivalent of a couch potato. The main culprit is sulfation, which is a gradual crystallization of the battery's plate material, rendering it electrically inactive.

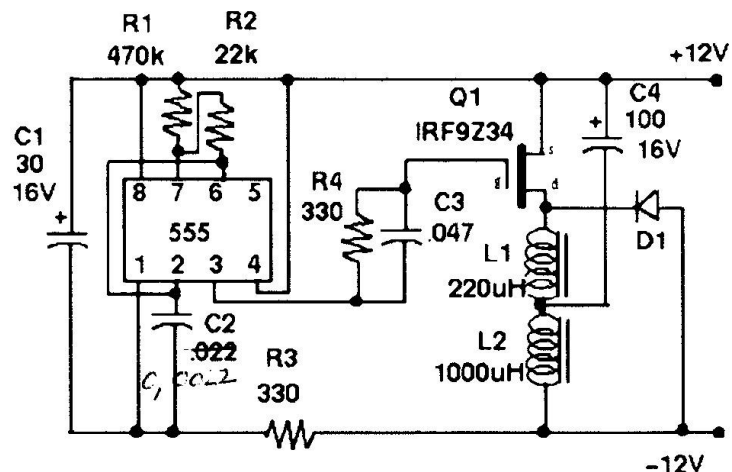
The usual practice of keeping a battery in good condition is to apply a periodic equalization charge over and above what would be a normal full charge. Unfortunately this is an energy wasting tactic. Ultimately it runs in clean battery plates, but at a steep price, especially if the energy must come from a generator.

Over the last twenty years a wealth of ideas and strategies for charging and electrically desulfating batteries has been published. Virtually all of the devices and patents involve pulsing charge current. This is in contrast to the constant or slowly varying currents generated by for instance solar panels.

A useful technique distilled from this information relies on a little known aspect of lead-acid batteries. They possess what is called a "resonant frequency" at a surprising high frequency dependent on the various physical details of construction, but is in the order of 2 to 6 MHz.

The right frequency at sufficient energy will "pluck" or vibrate sulfur ions back and forth through the electrolyte. There are then unaccountable collisions between the ions and the battery plates where this rhythmic beating slowly but surely causes the breakup of the crystalline deposits.

A circuit to do this is in essence a very widely used form of switching DC-DC converter. Fig. 1 shows the version specifically for 12V systems. The basic pulse rate is set by the venerable 555 timer chip U1 which switches the MOSFET Q1 at a 1 kHz rate. When Q1 is non-conducting, current is drawn from the battery through L2 so that capacitor C4 can be charged slowly. Then Q1 is turned on for a brief 50 μ s causing the charge stored in C4 to start flowing through L1.



When Q1 is turned off again, the stored inductive energy in L1 has to continue to flow somewhere, so it pulses back into the battery through diode D1. This current pulse can get as high as 6 Amps. The peak voltage drop across the battery can be as high as 50 volts. With continued treatment this will decrease as the battery's internal resistance gradually declines.

If an oscilloscope is available it is easy to observe the ringing waveform across the battery terminals. There may be more than one frequency due to all the wiring and other details.

Be careful to work in a well ventilated area. Depending on the battery case and inductors used, a faint audio tone can be heard. There is no reverse polarity protection in this circuit so make sure to connect correctly.

Usage.

Take note that pulsing energy to and from the battery happens at less than 100% efficiency. The circuit draws about 40mA from the battery, so some additional charging source is needed. I simply clip the circuit across the battery terminals in parallel with a 30 W solar panel. When external equipment such as an inverter or power supply is connected then additional low impedance paths are available. The current pulses will happily flow down these paths as well and are thus lost. The impedance of such equipment is however not very low at 1 MHz and above but adding ferrite chokes or clamp-on ferrites over the battery leads will prevent problems.

The circuit as shown is strong enough to maintain a battery bank of several hundred Ah. For larger banks, fine tuning the inductors and the on time of Q1 will be necessary. If you want to power the circuit from an auxiliary voltage source so that the battery being treated remains trickle charged, simply remove R3 and place 12V across C1.

It is best to construct the unit in a metal case otherwise it is likely to generate a fair bit of radio interference.

Does it work?

If badly sulfated batteries are treated, it is convenient to use a trickle charger of one or two amps. The simplest way to see if this circuit is having an effect is to note that the terminal voltage actually drops each day. Also the SG of the electrolyte should begin to rise slowly.

Healthy batteries

I have used this circuit in my main system for over a year and have not seen the need to equalize in that time. All of the cells' electrolyte levels remain in step with each other and there have been no problems starting big loads – a sure sign of battery health. Patience is required in reclaiming weak and tired batteries, and no amount of desulfating will help a battery with a shorted cell, or one that has lost plate material through excessive use.

This device is useful for batteries that sit for long periods. If you use a generator for equalization this technique is a must. When you live off-grid, silence is golden.

U. S. Noise Production Reaches New High

May 29, 1948, edition of the *Saturday Evening Post*

PERHAPS nowhere since man began to think has the escape into the quiet of his thoughts been made more difficult than it is in America today.

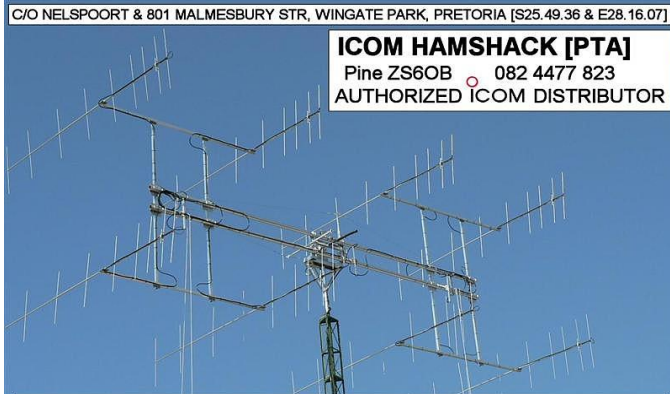
To blame radio for this is to oversimplify. The industry is properly held responsible for the many sins it commits in the name of entertainment and for its often hideous irrelevance, but the hand controlling the buttons of the individual radio receiver is the prime offender.

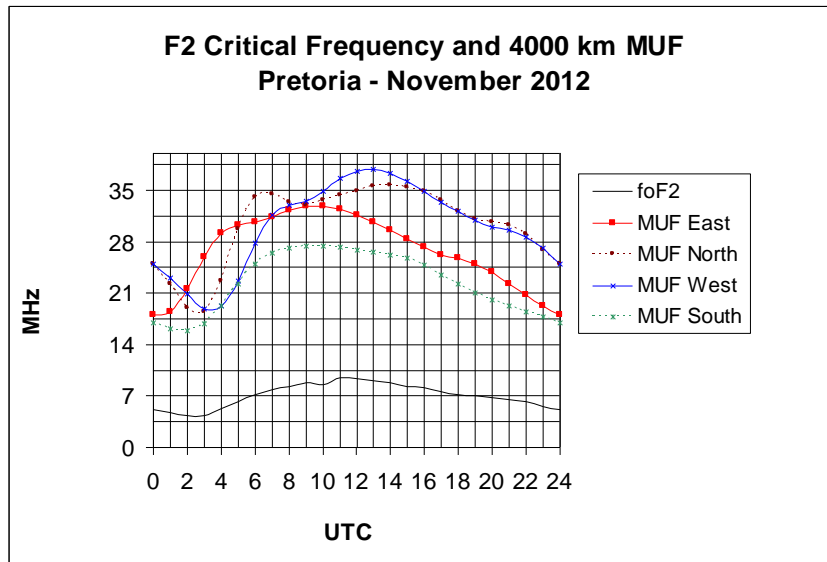
There are so many hands controlling so many buttons that to hope for relief from the scourge of radio noise seems almost foolish. It boils down to a question of manners. Is it foolish to hope that the member of the family who loves noise for its own sake will develop the decency to limit his odd appetite? Or that the apartment dweller who keeps his radio going loudly most of the day and night will have mercy on his neighbors cowering behind thin walls? Perhaps, but there is no harm in hoping.

There is no harm, either, in hoping that the newsreel companies will someday refrain from enhancing the horror of disaster pictures by the addition of apocalyptic commentary and foreboding music jerked from the bowels of Wagner; that the listening public will someday get help to the fact that the squalid self-dramatization of the loud-mouthed journalistic statesmen of radio is merely so many unnecessary decibels; that someday the American hostess will abandon her notion that a perpetual yackety-yak, however pointless, is necessary to the success of her parties; and that municipal authorities will get tough with the mobile loud-speakers which range the streets, expectorating racket into the ears of workers who are trying to think.

Meanwhile, for the protection of the harassed fugitive, there remain these three retreats- the soundproofed room, total deafness, and the public library, and the greatest of these is the public library. May God rest the soul of Andrew Carnegie, who fashioned better than he thought.

Ed: Besides less use of public libraries nothing much has changed?

<p>C/O NELSPOORT & 801 MALMESBURY STR, WINGATE PARK, PRETORIA [S25.49.36 & E28.16.07]</p> <p>ICOM HAMSHACK [PTA] Pine ZS6OB 082 4477 823 AUTHORIZED ICOM DISTRIBUTOR</p>  <p>FOR ALL YOUR ICOM PRODUCTS & ACCESSORIES SPECIALLY MANUFACTURED VHF/UHF EX60B ANTENNA SYSTEMS FOR: EME, TROPO, MS, REPEATER & SATELITE SYSTEMS</p>	<p>QRV Services offers the following expertise:</p> <ul style="list-style-type: none">• General equipment and TV repairs• Small-scale design and manufacturing• Frequency and power calibration• Technical writing• 3rd Party scrutiny of projects and documents• MFJ 259/69 Analyzer repairs and calibration• Valuation of ham estates and their disposal <p>and products:</p> <ul style="list-style-type: none">• Legal limit 30m and 40m dipole traps• Linear power supply O.V. protection kits• 30A DC switching supplies• Nissei SWR/Power meters HF and VHF/UHF• Connectors RF and DC• Plug-in triple sequential industrial timer <p>Contact Hans at 012-333-2612 or 072-204-3991</p>
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Long Term HF Propagation Prediction for November 2012

Courtesy ZS6BTY

(see also our website propagation tab)

DX Operating

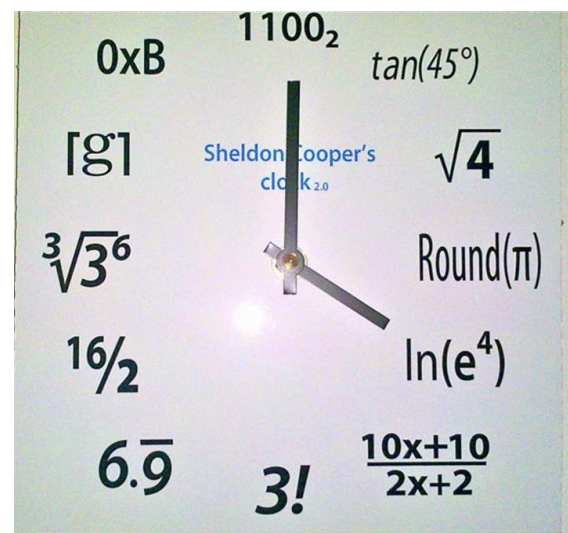
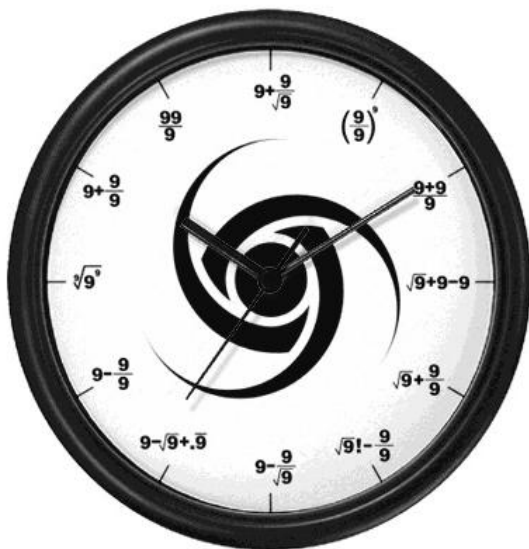
The graph shows the 4000 km maximum useable frequency (MUF) to the East, North, West and South from Pretoria for the first hop using the F2 layer.

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.

Last month's clock in more detail and another called the "Engineers' clock....

The central design may look like a bungled biohazard symbol, but it in fact is another three-nine reference, the "hurricane" symbol of a [high-IQ organization called the Triple Nine Society](#). (check it out)



This one differs a little from last month's at the one o'clock position. Math enthusiasts who don't want to move totally into the digital realm might appreciate this analog clock. Each number is expressed as a calculation involving three instances of the number 9. For example, 5 o'clock is the square root of nine (3), factorial ($3 \times 2 \times 1 = 6$), minus $9/9$ ($6 - 1 = 5$). The trickiest time is 7 o'clock, whose calculation works out to $6.99999\dots$, with an infinite number of nines. [Wikipedia assures us that \$0.99999\dots\$ really does equal 1](#), so no worries about cheating here..

How many AA batteries would it take to power a standard adult human for one day?

A Manganese/Alkaline AA cell is rated at about 2.4 amp-hours. If we assume 1.5 volts average this gives approximately 3.6 watt-hours (slightly optimistic). Since there are 3,600 seconds in an hour this is equivalent to 12,960 Joules. A human consumes about 2,000 calories/day. A dietician calorie is equal to 1,000 engineering calories. A calorie is equal to 4.2 Joules.

Therefore this is equivalent to $2,000 \times 1,000 \times 4.2 = 8.4 \times 10^6$ Joules per day.

Dividing one by the other you will need about **648 AA** cells to power a human for one day.

This assumes that the power from the AA cell will go through the same inefficiencies as the chemical processes in a human. (A human runs at about 20% efficiency chemical energy to mechanical energy).

If we can circumvent this inefficiency we would only need 20% of this number of cells - say 130 cells.