Frequency Is Neither A Pole Or A Zero In Fran De Aquino's m_g Equation

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A comparative analysis of the original Fran De Aquino equation for the electromagnetic radiation U on a particle with the results of "The System-G equation Solver" by J-L Naudin is presented below. The analysis shows that the statement by Fran De Aquino on page 1 of, "The System-G from Fran De Aquino, Engineering the device...," (shown below in equation 1), has three equalities which have variables in both the numerator and the denominators.

$$U = \frac{\eta \cdot P_a}{f} = \left(\eta \cdot \frac{S_a}{S \cdot f}\right) \cdot P = 2 \cdot \left(\eta \cdot \frac{S_a}{S}\right) \cdot \left(I_o \cdot z_o\right)^2 \cdot \left(\frac{1}{2} \cdot \mu_p \cdot \sigma_p \cdot \omega\right)^{\frac{3}{2}} \cdot \frac{1}{3 \cdot \sigma_p \cdot \omega} \qquad 1)$$

Since there are variables in both the numerator and the denominators, an analysis is performed on the expression on the far right in equation 1 to examine the role of frequency. First, how it relates to U and then with U solved, how the final equation related to mg is affected by frequency. What is found is that the mg result of equation 2 below is not affected by frequency.

$$m_g = m_a - 2 \cdot \left[\sqrt{1 + \left(\frac{U}{m_a \cdot c^2} \cdot \sqrt{\frac{c^2 \cdot \mu_i \cdot \sigma_i}{4 \cdot \pi \cdot f}}\right)^2} - 1\right] \cdot m_a \qquad 2)$$

For the following calculations the original parameters of Fran De Aquino are stated below. (From the equation solver by J-L Naudin.)

$c := 2.997924580 \cdot 10^{08} \cdot m \cdot sec^{-1}$ — Velocity of light in free space.

$m_a := 9.2736 \cdot 10^{-26} \cdot kg$ — Inertial mass of iron atom.

$m_g := 4.5348 \cdot 10^{-26} \cdot kg$ — Gravitational mass, proportionally reduced

$\mu_o := 1.256637061 \cdot 10^{-06} \cdot henry \cdot m^{-1}$ — Magnetic permeability of free space.

$\mu_r := 25000$ — Relative permeability of pure iron.

then: $\mu_i := \mu_r \cdot \mu_o$ or, $\mu_i = 0.031415926525 \cdot henry \cdot m^{-1}$

$\sigma_i := 1.03 \cdot 10^{07} \cdot siemens \cdot m^{-1}$

$f := 60 \cdot Hz$ — Radiation absorption frequency

$h := 6.626075500 \cdot 10^{-34} \cdot joule \cdot sec$ — Planks constant

First, we solve symbolically for U as a check on the dimensional units:

$$m_g = m_a - 2\cdot\left[\sqrt{1+\left(\frac{U}{m_a\cdot c^2}\cdot\sqrt{\frac{c^2\cdot\mu_i\cdot\sigma_i}{4\cdot\pi\cdot f}}\right)^2}-1\right]\cdot m_a \qquad 3)$$

has solution(s)

$$\begin{bmatrix} 2\cdot m_a\cdot\frac{c}{\left(\sqrt{\mu_i}\cdot\sqrt{\sigma_i}\right)}\cdot\sqrt{\pi}\cdot\sqrt{f}\cdot\sqrt{-1+\frac{1}{4}\cdot\frac{\left(m_g-3\cdot m_a\right)^2}{m_a^2}} \\ -2\cdot m_a\cdot\frac{c}{\left(\sqrt{\mu_i}\cdot\sqrt{\sigma_i}\right)}\cdot\sqrt{\pi}\cdot\sqrt{f}\cdot\sqrt{-1+\frac{1}{4}\cdot\frac{\left(m_g-3\cdot m_a\right)^2}{m_a^2}} \end{bmatrix} \qquad 4)$$

$$U_{pos} := 2\cdot m_a\cdot\frac{c}{\left(\sqrt{\mu_i}\cdot\sqrt{\sigma_i}\right)}\cdot\sqrt{\pi}\cdot\sqrt{f}\cdot\sqrt{-1+\frac{1}{4}\cdot\frac{\left(m_g-3\cdot m_a\right)^2}{m_a^2}} \qquad 5)$$

$U_{pos} = 1.018761324051426\cdot10^{-18}\cdot\text{joule}$ (Units check o.k.)

$$U_{neg} := -2\cdot m_a\cdot\frac{c}{\left(\sqrt{\mu_i}\cdot\sqrt{\sigma_i}\right)}\cdot\sqrt{\pi}\cdot\sqrt{f}\cdot\sqrt{-1+\frac{1}{4}\cdot\frac{\left(m_g-3\cdot m_a\right)^2}{m_a^2}} \qquad 6)$$

$U_{neg} = -1.018761324051426\cdot10^{-18}\cdot\text{joule}$ (Units check o.k.)

The high frequency equivalent of the atomic energy absorbed is:

$f_{high} := \frac{U_{pos}}{h}$ $\qquad f_{high} = 1.5375033442517\cdot10^{15}\cdot\text{Hz}$

The result of U symbolically shows that both a positive and negative energy solution is possible. Alternating the positive and negative energy absorption insures that the energy is reactive and does not generate thermal heat except for resistive losses which must be kept small. The associated reactive high frequency equivalent is also of interest as this is potentially ionizing radiation if it were to be radiated as real power into open space around the torus.

For the purpose of calculating U, (the power absorbed), the following is stated:
(From "The System-G from Fran De Aquino, Engineering the device...")

Absorption coefficient	Atomic cross sect. area	Shell area of absorption	Mass of target atom, (Iron).
$\eta := 1$	$S_a := 1.77 \cdot 10^{-20} \cdot m^2$	$S := 0.374 \cdot m^2$	$m_a := 9.27 \cdot 10^{-26} \cdot kg$

Iron Powder permeability	Conductance of iron powder	Antenna length	Shell permeability, (pure annealed iron.)
$\mu_p := 75 \cdot \mu_o$	$\sigma_p := 10 \cdot \frac{siemens}{m}$	$z_o := 12 \cdot m$	$\mu_i := 25000 \cdot \mu_o$

Conductance of iron shell.	Current in antenna	Frequency	Equiv. rad/sec
$\sigma_i := 1.03 \cdot 10^{07} \cdot \frac{siemens}{m}$	$I_o := 300 \cdot amp$	$f := 60 \cdot Hz$	$\omega := 2 \cdot \pi \cdot f$

$\omega = 376.9911184307752 \cdot sec^{-1}$

Then the power U in each atom absorbed is:

$$U := 2 \cdot \left(\eta \cdot \frac{S_a}{S}\right) \cdot \left(I_o \cdot z_o\right)^2 \cdot \left(\frac{1}{2} \cdot \mu_p \cdot \sigma_p \cdot \omega\right)^{\frac{3}{2}} \cdot \left(\frac{1}{3 \cdot \sigma_p \cdot \omega}\right) \qquad 7)$$

$U = 8.121619959839444 \cdot 10^{-18} \cdot joule$ $\qquad \frac{U}{h} = 1.225705918962053 \cdot 10^{16} \cdot Hz$

Please note that U is somewhat proportional to the frequency f above.

We now state the equation for the gravitational mass related to the inertial mass of the test system-G as given by Fran De Aquino below.

Then:

$$m_{g1} := m_a - 2 \cdot \left[\sqrt{1 + \left(\frac{U}{m_a \cdot c^2} \cdot \sqrt{\frac{c^2 \cdot \mu_i \cdot \sigma_i}{4 \cdot \pi \cdot f}}\right)^2} - 1\right] \cdot m_a \qquad 8)$$

$m_{g1} = -8.595533872243733 \cdot 10^{-25} \cdot kg$ $\qquad m_{ratio} := \frac{m_{g1}}{m_a}$ $\qquad m_{ratio} = -9.272420574157209$

NOTE: For a current of zero amps, the $m_g = m_a$ above.

The main equation (1.04) of Fran De Aquino is presented below for comparison purposes.

$\varepsilon := 8.854187817 \cdot 10^{-12} \cdot \frac{farad}{m}$ $\varepsilon_r := 1$ $\mu_r := 25000$ $\sigma := \sigma_i$ $m_i := m_a$

$$m_{g2} := m_i - 2 \cdot \left[\left[1 + \left[\frac{U}{m_i \cdot c^2} \cdot \left[\frac{1}{2} \cdot \varepsilon_r \cdot \mu_r \cdot \left[\left[1 + \left(\frac{\sigma}{\omega \cdot \varepsilon} \right)^2 \right]^{\frac{1}{2}} + 1 \right] \right]^{\frac{1}{2}} \right]^2 \right]^{\frac{1}{2}} - 1 \right] \cdot m_i \quad 9)$$

$m_{g2} = -8.595533874552521 \cdot 10^{-25} \cdot kg$ and, $\frac{m_{g2}}{m_a} = -9.272420576647811$

Note that mg1 and mg2 are indeed equal in the output with the above default parameters. Input of zero amps will also verify that the inertial and gravitational mass of the iron atom are equal.

If a different frequency is inserted in the above parameters, the output of the mg1 or mg2 equation does not change. This suggests that the process of mass change is not related to frequencies in the ELF range.

To verify that the output of the mg1 or mg2 equation is independent of frequency, we insert the expression above equal to U into the mg1 equation and use the Mathcad symbolic solver to simplify the expression which will cancel equal terms in the numerator and denominator. Note that the $(4\pi f)$ is equivalent to $(2\ \omega)$ in the original expression for mg1.

Then:

$$m_{g1} = m_a - 2 \cdot \left[\sqrt{1 + \left[\frac{2 \cdot \left(\eta \cdot \frac{S_a}{S} \right) \cdot \left(I_o \cdot z_o \right)^2 \cdot \left(\frac{1}{2} \cdot \mu_p \cdot \sigma_p \cdot \omega \right)^{\frac{3}{2}} \cdot \left(\frac{1}{3 \cdot \sigma_p \cdot \omega} \right)}{m_a \cdot c^2} \cdot \sqrt{\frac{c^2 \cdot \mu_i \cdot \sigma_i}{2 \cdot \omega}} \right]^2} - 1 \right] \cdot m_a \quad 10)$$

simplifies to

$$m_{g1} = \frac{1}{3} \cdot \frac{\left(9 \cdot S \cdot m_a \cdot c - \sqrt{36 \cdot S^2 \cdot m_a^2 \cdot c^2 + \eta^2 \cdot S_a^2 \cdot I_o^4 \cdot z_o^4 \cdot \mu_p^3 \cdot \sigma_p \cdot \mu_i \cdot \sigma_i} \right)}{(S \cdot c)} \quad 11)$$

Please note that the frequency term is no longer present indicating that it has canceled out.

A check is now done to see if the simplified equation output is correct.

$$m_{g1} := \frac{1}{3} \cdot \frac{\left(9 \cdot S \cdot m_a \cdot c - \sqrt{36 \cdot S^2 \cdot m_a^2 \cdot c^2 + \eta^2 \cdot S_a^2 \cdot I_o^4 \cdot z_o^4 \cdot \mu_p^3 \cdot \sigma_p \cdot \mu_i \cdot \sigma_i}\right)}{(S \cdot c)} \qquad 12)$$

or:

$$m_{g1} = -8.595533872243731 \cdot 10^{-25} \cdot kg$$

It appears that the equation solver (System-G Solver by JL Naudin) may use the U value as given on page 6 of Steve Burns paper ""Gravitational Weight Reduction with ELF EM Radiation" incorrectly by assuming that the numerator is constant. (See equation 13 below.)

$$U = \frac{\eta \cdot D \cdot S_a}{f} \qquad 13)$$

Finally, the energy absorbed in a cross sectional area is likely proportional to frequency, not inverse to it. (i. e., E = h f.)

It is of interest that Fran De Aquino stated to me that any frequency below 100 Hz may be used in the G test while holding the antenna length constant at 12 meters. This suggests to me that he may be aware of this null frequency effect. It also seems to me that since the shell does not heat up and there is little radiation outside the shell that we are generating a huge standing wave energy field inside the torus.

It is of interest that equation (7) above has similar terms in the current and antenna length as my equation (8) in my recent paper, "ElecMass.MCD", on my website. This is repeated below in equation (14)

$$m_{ant} = \left(u_o \cdot \frac{i_{ant}^2}{4 \cdot \pi \cdot l_q}\right) \cdot \left(\frac{d_{ant}}{c}\right)^2 \qquad 14)$$

This may bear further inspection for possible benefit to our common research efforts. "The field must be absorbed by the shield" is a statement made by Fran De Aquino. Please note that the condition for a standing wave field is satisfied if the changing electromagnetic field around the elements involved do no radiate as in a conventional antenna. Further, the field is essentially reactive and does not consume power except for resistive losses in the elements. While there may be current measured in the elements as well as voltage, the current and voltage are in the imaginary domain and therefore no real power is consumed.

Substituting U (equation (7)) into equation (9) and then utilizing the Mathcad symbolic symplifying function yields the following results.

$$m_{g2} = m_i - 2\cdot\left[\left[1+\left[\frac{2\cdot\left(\eta\cdot\frac{S_a}{S}\right)\cdot(I_o\cdot z_o)^2\cdot\left(\frac{1}{2}\cdot\mu_p\cdot\sigma_p\cdot\omega\right)^{\frac{3}{2}}\cdot\left(\frac{1}{3\cdot\sigma_p\cdot\omega}\right)}{m_i\cdot c^2}\cdot\left[\frac{1}{2}\cdot\varepsilon_r\cdot\mu_r\cdot\left[\left[1+\left(\frac{\sigma}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]\right]^{\frac{1}{2}}\right]^2\right]^{\frac{1}{2}} - 1\right]\cdot m_i \qquad 15)$$

simplifies to

$$m_{g2} = \frac{1}{3}\cdot\frac{\left(9\cdot S\cdot m_i\cdot c^2\cdot\sqrt{\varepsilon} - \sqrt{36\cdot S^2\cdot m_i^2\cdot c^4\cdot\varepsilon + \eta^2\cdot S_a^2\cdot I_o^4\cdot z_o^4\cdot\mu_p^3\cdot\sigma_p\cdot\varepsilon_r\cdot\mu_r\cdot\sqrt{\omega^2\cdot\varepsilon^2+\sigma^2} + \eta^2\cdot S_a^2\cdot I_o^4\cdot z_o^4\cdot\mu_p^3\cdot\sigma_p\cdot\varepsilon_r\cdot\mu_r\cdot\omega\cdot\varepsilon}\right)}{\left[S\cdot\left(c^2\cdot\sqrt{\varepsilon}\right)\right]} \qquad 16)$$

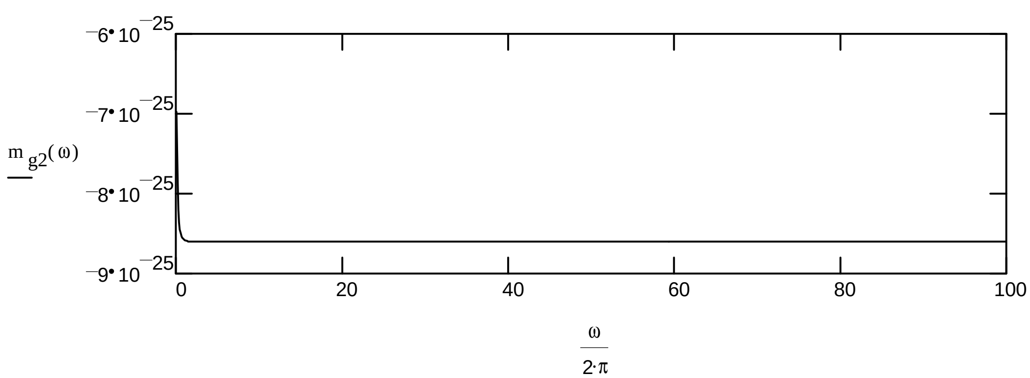
$\omega := 2\cdot\pi\cdot 0.1\cdot Hz, 2\cdot\pi\cdot 0.2\cdot Hz .. 2\cdot\pi\cdot 100\cdot Hz$ $\quad \Delta x := 6\cdot 10^{-3}\cdot m$ $\quad \mu := 25000\cdot\mu_o$

$k := 1$ $\quad \sigma := 1.03\cdot 10^7\cdot\frac{siemens}{m}$ $\quad \eta(\omega) := 1 - e^{-k\cdot\Delta x\cdot\sqrt{\pi\cdot\mu\cdot\sigma\cdot\frac{\omega}{2\cdot\pi}}}$

With new eta per Fran De Aquino and Steve Burns.

With eta as a function of omega AND: $\quad S := 0.374\cdot m^2$

$$m_{g2}(\omega) := \frac{1}{3}\cdot\frac{9\cdot S\cdot m_i\cdot c^2\cdot\sqrt{\varepsilon} - \sqrt{36\cdot S^2\cdot m_i^2\cdot c^4\cdot\varepsilon + \eta(\omega)^2\cdot S_a^2\cdot I_o^4\cdot z_o^4\cdot\mu_p^3\cdot\sigma_p\cdot\varepsilon_r\cdot\mu_r\cdot\sqrt{\omega^2\cdot\varepsilon^2+\sigma^2} + \eta(\omega)^2\cdot S_a^2\cdot I_o^4\cdot z_o^4\cdot\mu_p^3\cdot\sigma_p\cdot\varepsilon_r\cdot\mu_r\cdot\omega\cdot\varepsilon}}{S\cdot\left(c^2\cdot\sqrt{\varepsilon}\right)} \qquad 17)$$

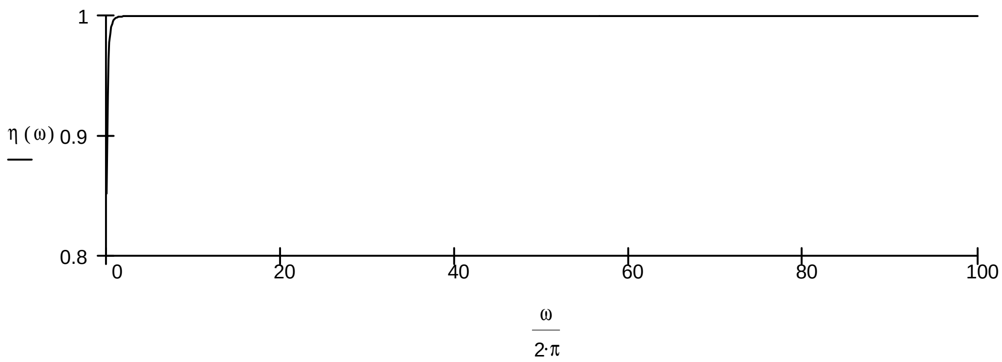


Compare with mg1: $\quad m_{g1} = -8.595533872243731\cdot 10^{-25}\cdot kg$

The output = m_a at zero hertz as expected and predicted by the previous analysis. Also, the affect of η as a function associated with changing frequency is nil on the main equation at higher frequencies as shown. (Value of mg = original analysis.)

It is of further interest that at higher frequencies, η tends towards 1 which is what Fran De Aquino states in his paper on-line "The System-G from Fran De Aquino: Engineering the device..."

Or:



If we are looking for a parameter that will cause the mg to maximize inversely proportional to some parameter, then the equations suggest that reducing the area of the torus (S) will maximize the resultant mass reduction related to mg as shown in equation (17) where if the torus area is reduced to .001 m square, it will cause mg to increase almost 500 fold. Also, the frequency does not seem to be limited to below 1000 Hz in the above analysis. (A 600 kHz upper limit was used above for equation (17) and the result for m_g and η remain linear with increasing frequency).

Further, in equation (17), reducing the shield thickness to 1 micrometer will cause the mg to go from one of attraction to one of repulsion with the standard 0.374 m^2 test area of the torus shield target.

Finally, of great interest is the fact that surrounding the antenna with pure iron instead of powdered iron will increase the -mg by 7 orders of magnitude. The result suggests that raising the frequency (which results in a shorter antenna length), placing the antenna in a enclosure of high permeability instead of powdered iron, raising the conductance of the iron near the antenna elements and making the torus shield area smaller all tend to increase the -mg result in a very dramatic fashion. Using annealed silicon iron sheets around the antenna element would help reduce eddy current flow. The antenna itself would have to be insulated electrically from the iron enclosure with as thin a layer of insulation as is practical. This would ensure a good field coupling to the iron.

The slowing of the phase velocity will cause the group velocity to exceed the velocity by the relationship $Vg = c^2 / Vp$. That which exceeds the velocity of light will involve the imaginary domain, (i). The imaginary domain is also the domain of purely reactive fields and is also the domain of pure standing waves which are the constituants of quantum mass.

Page 5 of http://members.aol.com/jnaudin509/systemg/html/sysgexp.htm has a slightly different looking equation for U than the one presented on page 1 of "The System-G from Fran De Aquino - Engineering the device..." and is presented below for analysis.

First, the statement for velocity is made as: (without the c multiplier as in p. 2 of: http://xxx.lanl.gov/html/gr-qc/9910036 which is in error.)

$$v = \left[\frac{1}{2}\cdot\varepsilon_r\cdot\varepsilon\cdot\mu_p\cdot\left[\left[1+\left(\frac{\sigma_p}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]\right]^{-\frac{1}{2}}$$

and further, 18)

First the v equation is checked to see that it will yield the velocity of light with the correct parameters and it is found to be correct when the proper parameters are inserted.

and:

$$U1 = \frac{\eta\cdot S_a\cdot\left(I_o\cdot z_o\right)^2\cdot\omega}{3\cdot S\cdot\varepsilon_r\cdot\varepsilon\cdot v^3}\cdot\left[\left[1+\left(\frac{\sigma_i}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]$$

19)

$$v(\omega) := \left[\frac{1}{2}\cdot\varepsilon_r\cdot\varepsilon\cdot\mu_p\cdot\left[\left[1+\left(\frac{\sigma_p}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]\right]^{-\frac{1}{2}}$$

$\sigma_i := 0\cdot\frac{\text{siemens}}{\text{m}}$ (Normally toggled off, test only.)

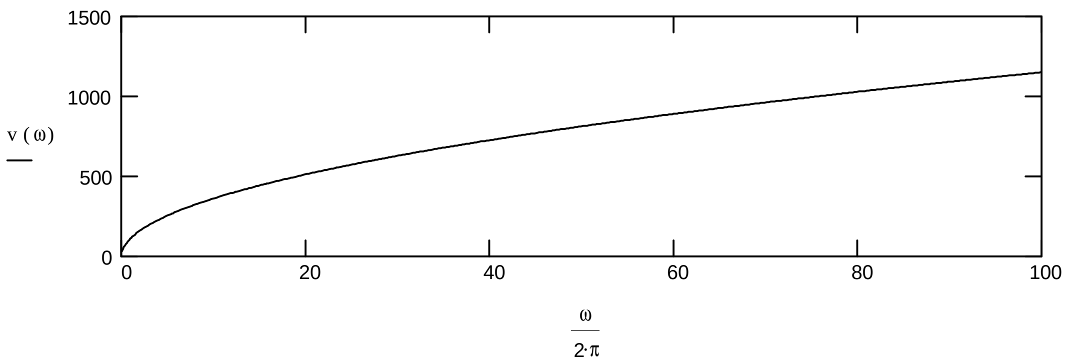
$\sigma_i = 1.03\cdot 10^{7}\cdot\frac{\text{siemens}}{\text{m}}$ (Actual value.) 20)

$\varepsilon_r = 1$ $\quad\varepsilon = 8.854187816999999\cdot 10^{-12}\cdot\frac{\text{farad}}{\text{m}}$

$\mu_r = 2.5\cdot 10^{4}$ $\quad\eta = 1$

$\mu_o = 1.256637061\cdot 10^{-6}\cdot\frac{\text{henry}}{\text{m}}$ $\quad\mu_i = 0.031415926525\cdot\frac{\text{henry}}{\text{m}}$ $\quad\mu_p = 9.424777957499999\cdot 10^{-5}\cdot\frac{\text{henry}}{\text{m}}$

With the stated parameters, the phase velocity v is calculated to be:

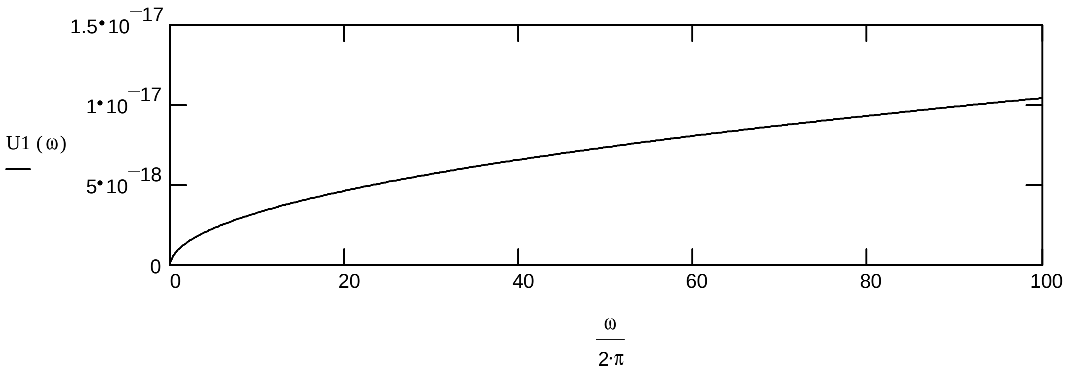


The chart above is in very good agreement with the Equation Solver of Jean Louis Naudin when the 60 Hz point is examined above..

Then solving for the energy U1:

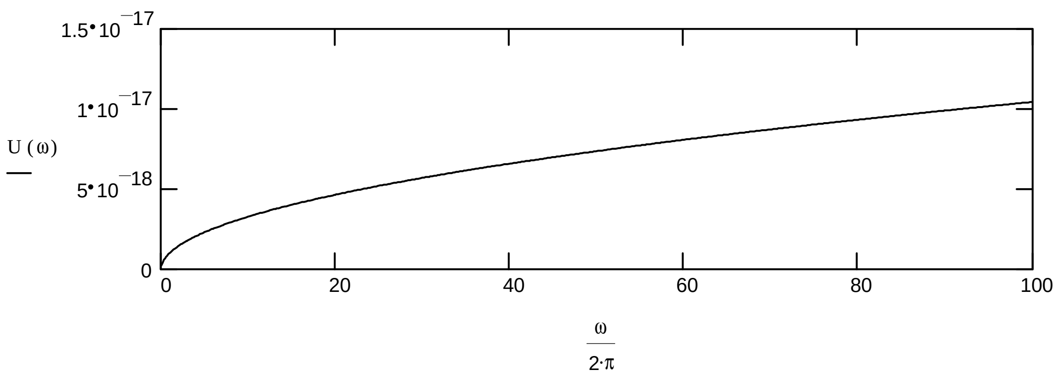
NOTE: Multiplier of 2 as per note below.

$$U1(\omega) := \frac{(2)\cdot\eta(\omega)\cdot S_a\cdot(I_o\cdot z_o)^2\cdot\omega}{3\cdot S\cdot\varepsilon\cdot\varepsilon_r\cdot v(\omega)^3}\cdot\left[\left[1+\left(\frac{\sigma_p}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]^{-1} \qquad 21)$$



Comparing this with the original U:

$$U(\omega) := 2\cdot\left(\eta(\omega)\cdot\frac{S_a}{S}\right)\cdot(I_o\cdot z_o)^2\cdot\left(\frac{1}{2}\cdot\mu_p\cdot\sigma_p\cdot\omega\right)^{\frac{3}{2}}\cdot\left(\frac{1}{3\cdot\sigma_p\cdot\omega}\right) \qquad 22)$$



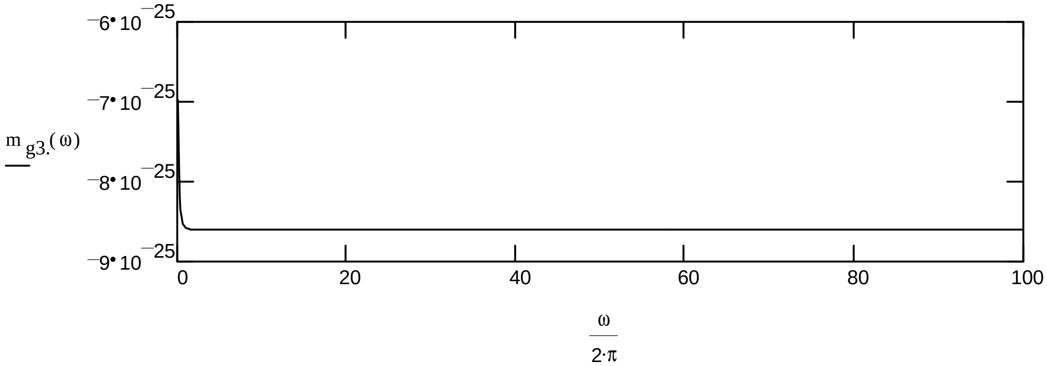
It is seen that the two charts above agree closely with each other and also the 'units' checked o.k. in both U and U1 and both equal joules.

NOTE: It is of interest that U1 is exactly 1/2 of U on close examination.

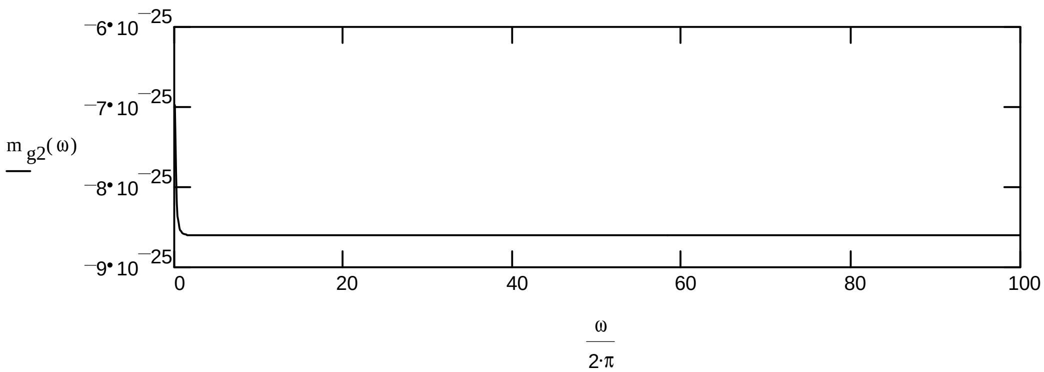
Using U1 instead of U, the new Mg is calculated below as m_{g3}.

$$m_{g3}(\omega) := m_i - 2\cdot\left[\left[1+\left[\frac{U1(\omega)}{m_i\cdot c^2}\cdot\left[\frac{1}{2}\cdot\varepsilon_r\cdot\mu_r\cdot\left[\left[1+\left(\frac{\sigma}{\omega\cdot\varepsilon}\right)^2\right]^{\frac{1}{2}}+1\right]\right]^{\frac{1}{2}}\right]^2\right]^{\frac{1}{2}}-1\right]\cdot m_i \qquad 23)$$

Thus:



And for mg2:



The above value agrees very closely with the results for m_g, m_{g1} and m_{g2} above.

Finally, we derive the total weight loss of Fran De Aquino's apparatus below.

$iron_{density} := 7874 \cdot \frac{kg}{m^3}$ $\quad Torus_{LargeDia} := 0.640 \cdot m$ $\quad Torus_{SmallDia} := 0.0635 \cdot m$ $\quad Shield_{Thickness} := 0.0006 \cdot m$

$$Shield_{Mass} := (iron_{density}) \cdot 2 \cdot \pi \cdot \left(\frac{Torus_{LargeDia}}{2}\right) \cdot 2 \cdot \pi \cdot \left(\frac{Torus_{SmallDia}}{2}\right) \cdot (Shield_{Thickness}) \qquad 24)$$

Then: $Shield_{Mass} = 1.894960255081066 \cdot kg$

Multiplying the shield mass by the m ratio of equation (8) previous:

$$Mass_{Neg} := Shield_{Mass} \cdot m_{ratio} \quad \text{or,} \quad Mass_{Neg} = -17.57086845642387 \cdot kg \qquad 25)$$

Adding this to the total mass of the experiment where: $Mass_{Total} := 35 \cdot kg$

Then: $Mass_{New} := Mass_{Total} + Mass_{Neg}$ or, $Mass_{New} = 17.42913154357613 \cdot kg$ 26)

This is very close to the result obtained with the current Equation Solver by Jean Louis Naudin.

The analysis of Fran De Aquino's equations as presented by Fran De Aquino, Jean Louis Naudin and Steve Burns is summarized below.

1. The "antenna" does not radiate as a conventional antenna radiates but is expected to have the field energy of the elements totally absorbed by the surrounding shield.

2. The absorbed energy in the shield is where most of the negative mass field is generated and contained. Some may be contained in the iron powder surrounding the elements of the antenna.

3. The action inside the shield is most like a standing wave action and the sheild and internal iron constitute a reactive medium that consumes little real power.

4. The current in each opposing element will flow in the same direction relative to each other at the same relative location inside the torus. (This is due to the fact that the elements are wound counter-directional but parallel to each other.) Thus momentum of the element current is in the same direction as the other element as well as the reactive fields being additive. Wrapping the conductors around each other will not serve to cancel inductance in this case.

5. The loss of mass is NOT inversely proportional to frequency as is presented by the Equation Solver of Jean Louis Naudin. This was demonstrated by equations (10), (11) and (12) above. Rather, the test configuration, according to the equations above, is able to generate standing wave geometry without being frequency dependent. The plots show that the negative mass effect is flat with respect to frequency change.

6. What DOES affect the mg output most is the current and length of the elements in the $(Io\ zo)^2$ expression as related to the field input energy. (See eq. 1 & 21 above.) Other parameters that affect the output were discussed on page 7 previous such as torus size, etc.

In conclusion, it is my sincere hope that the results as presented by Fran De Aquino can be verified. No one wants to see the world benefit more from something like this than yours truly. -- Jerry E. Bayles, April 10, 2000.

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