MORE ABOUT AQUINO'S TINY SECRET

First I want to mention that there is a very small mistake by me in the weight of System G. Professor has initial weight of 34,85Kgr and I used, in my equations 35Kgr initial weight. I checked if we have large differences in currents and I realized the differences is in a magnitude of 0,2 to 0,4A.So, there will not be any problem and I will continue to use it, in my equations (Only the J.X equations) the initial weight of 35Kgr, for not to confuse the reader.

J.X Equation:

$$m_{g(System\ G)} = 35Kgr - 2\cdot 1{,}96Kgr\left\{\sqrt{1+5{,}71\cdot 10^{-27}\cdot I^{4}{}_{0}\cdot n^{2}{}_{r}(\mu_{\chi})}-1\right\} \qquad [1]$$

Now we are going to see more into the measurements of Aquino, about the current and the reduced weight.Professor Aquino claims that he measured a current of 130,01A and the weight jumped to 5,8Kgr.And theoretically he predicted 129,83A for this weight.

The error in the currents is the follow:

$$\frac{I_{\text{Exp}} - I_{\text{Th}}}{I_{\text{Exp}}} = \frac{130{,}01A - 129{,}83A}{130{,}01A}\cdot 100 = 0{,}138\%$$

$$I_{\text{Exp}} = Experimental\ Current$$

$$I_{\text{Th}} = Theoretical\ Current$$

This error can be considered as the accuracy of the instrument. Meaning an accuracy of $\pm 0{,}138\%$**.**

The usual instruments and specifically the Inductive Ammeter has an accuracy of $\pm 2\%\ or\ \pm 3\%$**(cheap commercial version), which is depended on the measuring scale. Maybe he used a very accurate method.**

Another two very important scenarios are the follow:

The one, is in my equations, where I use Relative Magnetic Permeability of 25000 (exactly), it gives 133,57A (not rms) for almost m_g=5,8Kgr.So the error of my theoretical result and the experimental result of Aquino's is:

$$\frac{I_{\text{Exp}} - I_{\text{Th}}}{I_{\text{Exp}}} = \frac{130,01A - 133,57A}{130,01A} \cdot 100 = -2,73\%$$

$I_{\text{Exp}} = Experimental\ Current$

$I_{\text{Th}} = Theoretical\ Current$

Where this error is in the range of accuracy of a commercial cheap Inductive Ammeter.

The second scenario, maybe is related to the tiny secret of Aquino, which is more possible.As you can remember we concluded that the Initial Relative Magnetic Permeability of the Iron Shield is almost 500.Now we will make a second trick.

We are going to calculate the Maximum Magnetic Permeability, by using theoretical and experimental data, according to Aquino's diagram.

Firstly we are going to use, his theoretical prediction of weight, meaning the 5,8Kgr for 129,83A and we will apply these results to equation [1] (J.X Equation).The equation [1], becomes:

$$5,80 = 35 - 2 \cdot 1,96 \left\{ \sqrt{1 + 5,71 \cdot 10^{-27} \cdot 129,83^4 \cdot n^2{}_r(\mu_\chi)} - 1 \right\} \Rightarrow$$

$$8,44 = \sqrt{1 + 5,71 \cdot 10^{-27} \cdot 129,83^4 n^2{}_r(\mu_\chi)} \Rightarrow$$

$n_r(\mu_\chi)\ is\ a\ function$

$$n^2{}_r(\mu_{\max}) = 43,3 \cdot 10^{18} \Rightarrow n_r(\mu_{\max}) \simeq 658 \cdot 10^7$$

Now we are going to do the same, as we did, for the calculation of the Initial Relative Magnetic Permeability. We know:

$$\left(\frac{n_{r1}}{n_r(\mu_{\max})} \right)^2 = \frac{\mu_1}{\mu_{\max}},\ where\ n_{r1} = 622 \cdot 10^7\ is\ the\ refraction\ index\ in\ \mu_1 = 25000 \cdot \mu_o$$

$and\ n_r(\mu_{\max})\ is\ the\ refraction\ index\ ,\text{using}\ \mu_{\max}, where\ appears\ the\ \text{maximum}\ value\ in\ 129,83A\ (not\ rms)$

Finally we have the result:

$$\mu_{\max} \simeq 28409 \cdot \mu_o$$

For initial weight of 34,85Kgr we take the same result.

The same we will do it for the equation of Aquino. I check some points by his table of values and I concluded that he uses the following formula, for his theoretical points:

$$m_{g(System\ G)} = 34,85Kgr - 2\cdot 1,69Kgr\left\{\sqrt{1+4,4\cdot 10^{-9}\cdot I^{4}_{0}} - 1\right\} \qquad [2]$$

Please check it. We see that he uses 1,69Kgr weight of Torus Shield, when my calculations by his geometrical parameters gave 1,96Kgr.Here we have a conflict.

His diagram is described by equation [2].Then we have two scenarios. The one is that he made a mistake and instead of 1,96Kgr he wrote 1,69Kgr.Or I calculated wrong the Volume of Torus by his parameters.

Please, confirm again my calculations if they are right.

First we must transform the equation [2], to have a general expression, depended by the refraction index. As we know the Torus surface is 0,374 m^2.So there will be only a change in masses,in equation [1]:

$$m_{g(System\ G)} = 34,85Kgr - 2\cdot 1,69Kgr\left\{\sqrt{1+5,71\cdot 10^{-27}\cdot I^{4}_{0}\cdot n^{2}_{r}(\mu_{\chi})} - 1\right\} \qquad [3]$$

The above is the exact general form (depended by the current and the refraction index) of Aquino equation and according to his theoretical values on the related table in his paper.

By applying the same parameter values as above, the equation [3] is the follow:

$$5,8 = 34,85 - 2\cdot 1,69\left\{\sqrt{1+5,71\cdot 10^{-27}\cdot 129,83^{4}\cdot n^{2}_{r}(\mu_{\max})} - 1\right\} \Rightarrow$$

$$9,59 = \sqrt{1+5,71\cdot 10^{-27}\cdot 129,83^{4} n^{2}_{r}(\mu_{\max})} \Rightarrow$$

$$n^{2}_{r}(\mu_{\max}) = 56,1\cdot 10^{18} \Rightarrow n_{r}(\mu_{\max}) \simeq 748\cdot 10^{7} \Rightarrow$$

$$\left(\frac{n_{r1}}{n_{r}(\mu_{\max})}\right)^{2} = \frac{\mu_{1}}{\mu_{\max}},\ \textit{where}\ n_{r1} = 622\cdot 10^{7}\ \textit{is the refraction index in}\ \mu_{1} = 25000\cdot \mu_{o}$$

and $n_{r}(\mu_{\max})$ *is the refraction index* ,using $\mu_{\max}$, *where appears the* maximum *value in* $129,83A$ (*not rms*)

Finally we have:

$\mu_{\max} \simeq 30120\cdot \mu_{o}$ **.So we conclude the follow:**

For $I_{Th} = 129,83A$ *and weight reduction to* $5,80Kgr$,

$J.X.\ Eq[1]: \mu_{\max} \simeq 28409 \cdot \mu_o$

$F.A.\ Eq[3]: \mu_{\max} \simeq 30120 \cdot \mu_o$

We take the same results, if we use the experimental data of 130,01A.

Now we will check the value of 133,57A, which my equation [1], predicts the reduction of weight to 5,80Kgr.We know that equation [1] for 133,57A and reduction of weight to 5,8Kgr, has Relative Magnetic Permeability of 25000.We will apply this current to equation [3](Aquino's equation by his Table and Diagram):

$$5,8 = 34,85 - 2 \cdot 1,69\left\{\sqrt{1 + 5,71 \cdot 10^{-27} \cdot 133,57^4 \cdot n^2{}_r(\mu_{\max})} - 1\right\} \Rightarrow$$

$$9,59 = \sqrt{1 + 5,71 \cdot 10^{-27} \cdot 3,18 \cdot 10^8 \cdot n^2{}_r(\mu_{\max})} \Rightarrow$$

$$n^2{}_r(\mu_{\max}) = 50,1 \cdot 10^{18} \Rightarrow n_r(\mu_{\max}) \simeq 707 \cdot 10^7 \Rightarrow$$

$\left(\frac{n_{r1}}{n_r(\mu_{\max})}\right)^2 = \frac{\mu_1}{\mu_{\max}}$, *where* $n_{r1} = 622 \cdot 10^7$ *is the refraction index in* $\mu_1 = 25000 \cdot \mu_o$

and $n_r(\mu_{\max})$ *is the refraction index* ,using $\mu_{\max}$, *where appears the* maximum *value in* $133,57A$ (*not rms*)

Finally we have:

$$\mu_{\max} \simeq 32467 \cdot \mu_o$$

Then by take all of the above results, we have again:

For $I_{Th} = 129,83A$ *or* $I_{E\,\mathrm{xp}} = 130,01A$ *and weight reduction to* $5,80Kgr$:

$J.X.\ Eq[1]: \mu_{\max} \simeq 28409 \cdot \mu_o$

$F.A.\ Eq[3]: \mu_{\max} \simeq 30120 \cdot \mu_o$

And for $I_o = 133,57A$ *and weight reduction to* $5,80Kgr$:

$J.X.\ Eq[1]: \mu_{\max} = 25000 \cdot \mu_o$ (*It is known fact*)

$F.A.\ Eq[3]: \mu_{\max} \simeq 32467 \cdot \mu_o$

CONCLUSIONS AND COMMENTS

In any case the experimental and theoretical data of Aquino, gave at least 13,6% greater value than the Relative Magnetic Permeability of 25000.
Then again the conclusion goes to our initial suspicion scenario, where:

Professor Aquino had the B-H Curve and the Permeability Curve of the Iron Shield, which was given by a manufacturer or by the University.
Because the Permeability is a very unstable parameter, which depends on Temperature, Current and the Time Stability factor, the B-H diagram, predicted a 25000 of Relative Magnetic Permeability in specific conditions, but during the operation of the System G, this parameter appeared large fluctuations.

This fluctuations maybe caused by the increasing of the temperature by the absorbption of the ELF Energy in Torus Shield or by the current itself.

We must not to forget that the current, is an AC Current, which means alternative current, where passes every 8,3 msec (60 Hz Brazilian Power Network) the zero value.The alternative current which is in the scale of 130A peak, changes continually the Permeability by time and more, this fact maybe generates some heat on the Iron Shield, where again make the Permeability more unstable.

If Aquino did the experiment (We must believe that he did it, because we must proceed to the investigation of this experiment), he observed these effects of the fluctuations of Permeability, indirectly of course, by observing the instability of the weight reduction near the critical current.

Instability of the current itself could not be observed, because the Torus Shield Permeability cannot affect the Radiation Resistance.

The above conclusion gives the evident that Professor Aquino, knew that it would be a problem and a complex information for the reader and for him, to give the exact equation that describes the effect.

So he gave the equation as described in his related paper, which was used as we have calculated in the previous document, Shield Iron Torus with Initial Relative Magnetic Permeability of 500.

His equation does not predict the change in Permeability in Torus and he keeps the value 500 in the whole range of the used currents. Again this happened as we have seen, because of the complex description of the Permeability in critical conditions.

I am absolutely sure that, his first experiment (System H) with the Iron ball, he did not have the above problem. Because the frequency in the first experiment was very low and below 1 Hz and more the currents, where he used was not large (10A max).So the Permeability was almost stable and equal to the Initial Permeability of the Iron Ball.The equation that he has written may predict the right results, without abnormalities in the related paper with the System H.

Best Regards

John Xydous

Electronic Engineer

Greece