

## The Secret of the Tesla's Coils

To my opinion, the magnificent building in Colorado Springs, the device which Nikola Tesla constructed to make experiments with wireless conveyance of energy, is not the „usual transformer“, as it is oftenly described, it is really the mashine of the extremely great complexity (despite of its apparently simple construction), and it is actually some kind of „overunity“ mashine.

This device was, as many others with similiar construction, often compared with Marconi's and likewise radio-transcievers, whose operations were based on classically (Hertzian) EM waves – described detailly by Maxwell equations. Although, we have to consider the fact that wireless conveyance of energy Nikola Tesla wanted to achieve was based on the waves of „different nature“. He constantly indicated this fact and there are numerous and very precise written arguments. One of these confirmations can be found in his US patent number 5 780 from 19.02.1900., „Apparatus for transmission of electrical energy“ /5/ where Nikola Tesla says:

“... It is too noted that the phenomenon here involved in the transmission of electrical energy is one of **TRUE CONDUCTION AND IS NOT TO BE CONFOUNDED WITH THE PHENOMENA OF ELECTRICAL RADIATION** which have heretofore been observed and which from the very nature and mode of propagation would render practically IMPOSSIBLE THE TRANSMISSION OF ANY APPRECIABLE AMOUNT OF ENERGY TO SUCH DISTANCES as are of practical importance. ...” As we can see Tesla in this document is very clear and without ambiguity points to the fact that his system of wireless energy transmission ISN'T based on (classically) EM waves, so there isn't understandable persistence in many assertions to explain the work of his mashines through the principles Maxwell founded, principles involving expansion of (Hertzian) EM waves, waves with limits (extinction with its square length) Nikola Tesla undoubtedly was very aware of.

All analisis of Tesla achievements and principles of his devices, their functionality and efficiency, were done from an aspect of scientifically valid theories, but theories that don't operate with phenomenon of Tesla's Non-Hertzian waves, which doesn't even exist in those theories, (according to our idea published in /6/ that possibility can be accepted in the form of wave with evanescent mode / “Maxwell” waves with negative wave number/), so the conclusions are in line with that analisis. They aren't precise, to say it in the most appropriate manner.

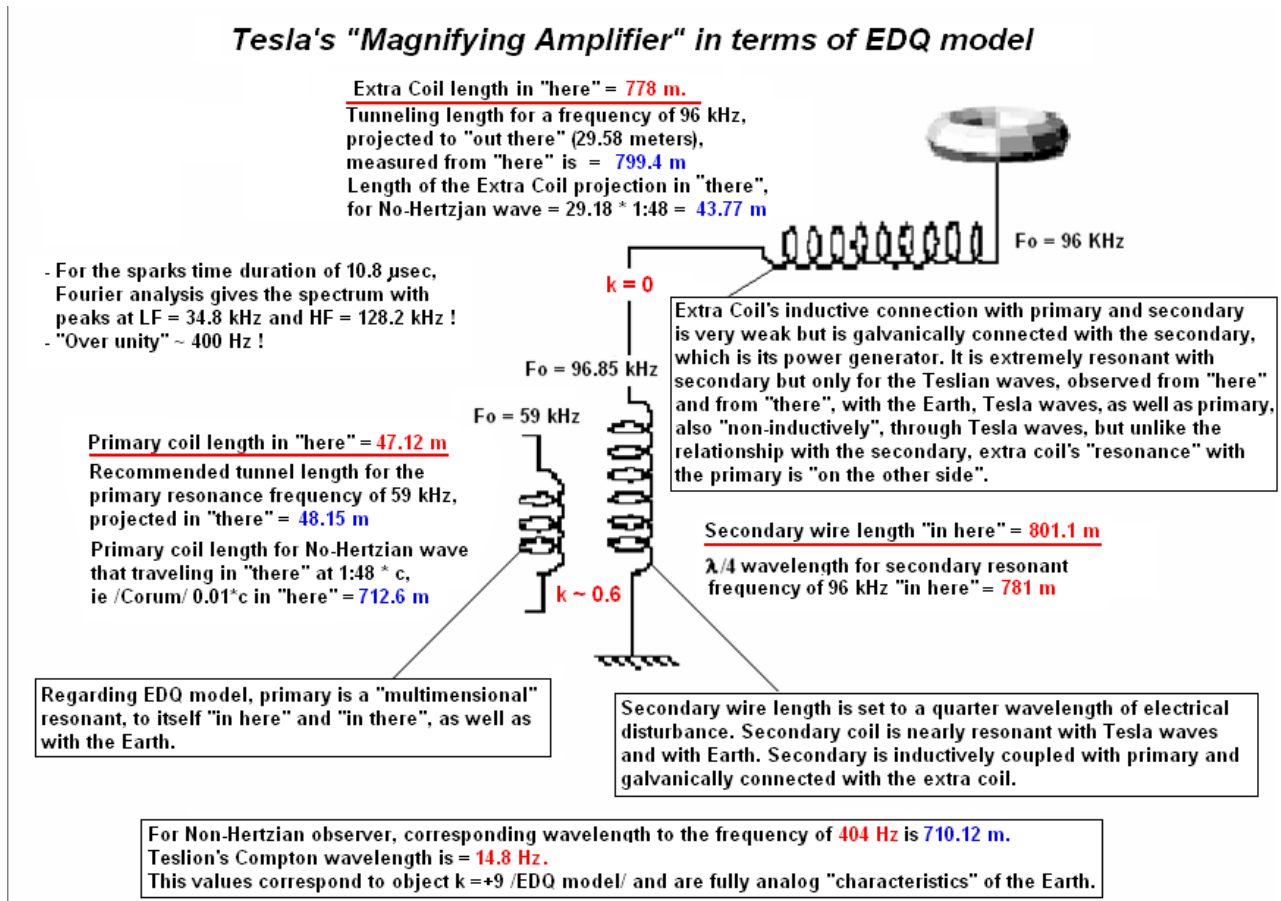
An example is given in /1/ with conclusion that energy weakens with its length square (classically EM wave), which will make very limited transfer (to short distances and/or with small amounts of power, which is uncorrect concerning the Teslian waves, because the waves on their way from “emitter” to “receiver” can be multiple amplified through the effect of multiple “feed” of stationary wave, so to say – the same effect Tesla uses in his “extra coil” and gets the voltage of about 12 million Volts!

From an **Energy Density Quantification (EDQ)** model point of view (as indicated in /6/), Non-Hertzian Nikola Tesla's waves are quite really possible existing Stable Object of Unity, the same as all others scientifically known objects, those objects with corpuscular or wave nature. Further more, expected characteristics from Tesla's waves offered by EDQ model are completely in accordance with characteristic of “unknown waves”, who have unusual features detected by “unconventional” experiments using the devices from “alternative” physics areas, popularly called “overunity” mashine.

According to the datas from the Tesla's diary from Colorado Springs (/3/), the final version of “transformer”, in contrast with the most of other of his discoveries, is achieved after the number of subsequent experiments and many alterations. It is very well known that Tesla imagined his devices first, he “saw” them to smallest details. He could also follow and analyse their work in his thoughts, perfecting them, and after this proces he made them (some of them are made many years after), without the need for corections. However, his mashine (Tesla's “transformer”) from Colorado Springs, appeared to be an exception. Numerous modifications and many alterations he made through the construction process, indicate that he imagined EXCEPTIONALLY COMPLICATED mashine inspite of its pseudo simplicity, and he made very complicated device with far more extent of complicity than numerous devices Tesla constructed without any effort. The question that comes the next: “Had Nikola Tesla achieved his goal after all?”, will be left without the reliable answer, concerning the fact his experiments with wireless energy transfer were stopped in their final phase (the monumental tower in Long Island was never finished), and his other similiar experiments (for example – experiments with radiant energy) were left with very little informations.

Whatever the case may be, our opinion is that the work of Tesla's “transformer” can hardly be explained with classically, conventional methods. It is really more than tragic, as Keneth Corum says (/7/), that many, highly competent, experienced and educated people use construction with concentrated parametars, and even inductors, calling them Tesla's coils, alluding thier interaction with classical EM waves (for science - the only existing Hertzian waves). And more than that, Tesla's “extra coil” – quarter-wave resonator which HOLDS the energy (it presents anthena that doesn't emit), and (if the spiral coil is properly adjusted) through

the relation of voltage of standing wave, it enables huge INCREASE of voltage („pressure“ as Tesla said) – and until this day for many people it represents (just) an „(un)usual coil“. And they don't pay attention to the fact that eliminating the great amounts of losses (due to the radiance or „prematurely“ emitting streamlines /wich are actually „mistakes“ in the process of wireless energy transmission/, because of their poor construction), can be attained with simple tuning of coefficient of mutual inductance with endurance of spark (and Tesla says that very clearly in his patents). These are probably the main arguments that cause the fact no one and not until now never achieved (in the sence of the work efficiency, not the lenght of the „spark“ ) the results that are near the ones Tesla achieved in his time.



Picture1: Schematic display of Tesla's "Magnifying Amplifier"

Concerning this type of thinking, there is also the evidence that the work of Tesla's transformer was often accompanied with the series of unususal effects and lightning balls (probably the most interesting of them all) were just the obstruction for Tesla in his work, beucause they devastated and destroyed his equipment, and he was forced to research them very well and he tried to controle them. Although, there are various scientificl interpretations of this phenomenon, their "structure" and mechanism of genesis isn't clearly defined yet, so thier appearence is more or less, even in this time, random.

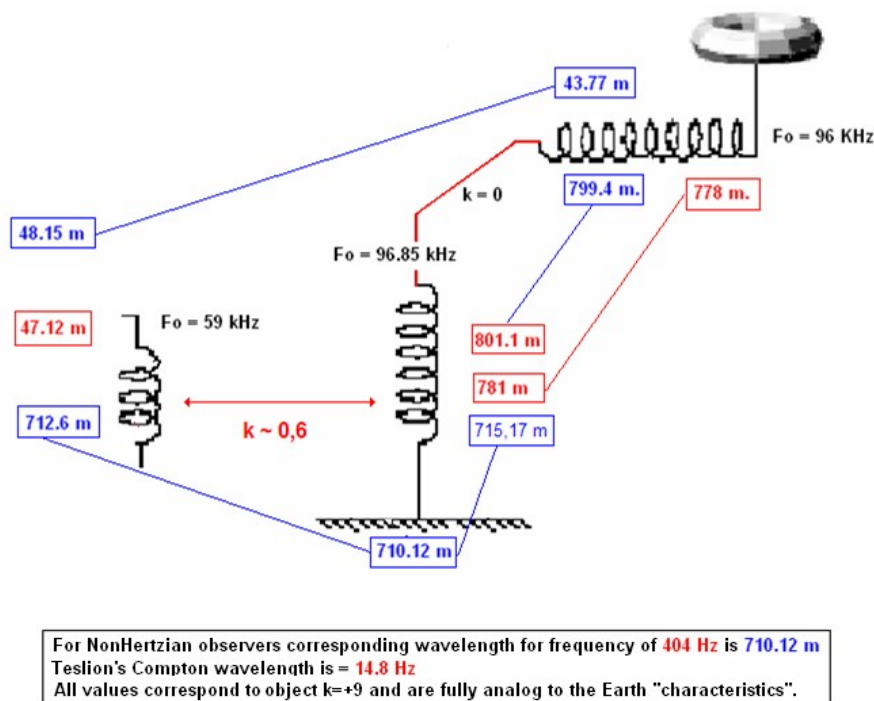
As we shall see in the following sequence, Tesla's "transformer", from an EDQ model point of view, has ALL key characteristics completely identical with "overunity" machines. Concerning that fact, it is completely justified to expect similiar effects those devices show in their work, so the appearance of lightning balls heavily streightens our basic idea that Tesla's "transformer" can not be described in any way with clasical concept of transformer, beucase Tesla INTENTIONALLY WEAKENS mutual inductance with attached coil, which is exactly the OPPOSITE with apperhension of energy conveyance efficiency by induction in the classic sence and that is the main characteristic of transformer. And further more, we have to admit that the concepts of radiance and standing waves, the characteristics of this device, are more appropriate to the concept of "Magnifying Amplifier" Tesla used, than the idea of "transformer" unfortunately used these days so often.

Taking all of these facts into consideration, as well the characteristics of Teslas waves (object  $k = +9$  EDQ model) let us try to analize electro-mechanic structure of Tesla's transformer and point of their harmonised interaction, their "resonance" intercourse. In that way our assumption presented in /1/ isn't just

amplified (that Tesla's waves are the ONES that carry the "free" energy), it also points to the possibility and very certain probability that Tesla's Magnifying Amplifier could be some kind of energetic converter of "free" energy!

All analyses about the work of Tesla's transformer done so far, are made by various authors, based on classical scientific approach and they cover calculations of series of parameters, for instance: spiral inductivity, (auto)capacity, mutual inductance coefficient and so on. In the technical-mathematical sense of meaning they are really very correct. Unfortunately, some conclusions, as a necessary consequence of this point of view, are not in accordance with ideas and experimental results Nikola Tesla attained. A certain limitations classically explained by relativity theory (for instance - speed of light postulate) disables "multidimensional" understanding of Tesla's device "geometry", and according to that fact its dimensional higher "structures" of interactions, which is by our opinion, decisive for those unclear understandings and interpretations of real energetic transformations globally, and specially in the state of "spacetime" deformations (extremely strong fields, shortimed impulses...), and for that fact operation of Tesla's transformer is unclear, wireless energy conveyance is uneficient (impossible) and many other Tesla's ideas are simply – absurdity. EDQ model shows us quite opposite possibilities.

### ***Tesla's "Magnifying Amplifier" in terms of EDQ model***



Picture2: Hertzian/Non-Hertzian flows of energy

According to our understanding, learned by experience from great number of accomplished and detailly analyzed experiments, Tesla tried to make his devices (for (wireless) energy conveyance, beside "ordinary" electro-resonant (inductance and capacitance relations), satisfy some sort of "mechanical" resonance, and because of that he gave lot of his attention to the "geometry" of construction integrity. And there are many detailed analyses of influences made by various changes of spiral coil radiuses, wire thickness, spacing between certain coils, spiral heights, their positions, shapes...

If he paid attention just to electrical resonance, all those details would be less important, because they could be very quickly and easily compensated. In addition to this kind of thinking there is a fact that initial size in extra coil construction wasn't (as an example) the number of coils, as it'll be logical, but the LENGTH of wire, wich should be, as Tesla asserted, (approximately) equal to one quarter of wave lenght of electrical disturbance in circuit /3/. And further more, principal: as much copper in primary – the same in the secondary (the less coils with thicker wire on primary should have similiar mass as greater number of coils made from thinner wires on secondary). And to make the mashine get into the resonance with Earth and make its work more efficient, Tesla gave those instructions:

- “1) Radius of Earth should be odd multiple number of quarter wave length;  
 2) Oscillations should be of those kind which produce very small radiance of energy in Hertzian electromagnetic waves sense (!!!)  
 3) The most important demand is to make oscillations last longer than 0.084 sec, which is expected time for wave to go forward and back from the other side of Earth...”**

Tesla achieved resonance with frequency of secondary in electrical sense, with carefully selected choice, to be exact - with adjusting dimensions of „Top-load“, capacitor (with ball or torus shape) placed on the top of spiral. Round body with smooth surface was necessary for avoidance of „prematurely“ currents (energy losses), and its size defined capacity - which made extra coil to become a quarter-wave resonator, with infinite resistance (high impedance) on the ballast side, so that the wave could be reflected without change of phase, while on the secondary side the resistance was minimal (low impedance - small inner resistance of „electrical current generator“), which made the wave repulse while changing the phase for 180 degrees. In that way the wave makes itself in phase with „new arrived“ wave from „generator“. So to say, the expedition of the wave along the  $\lambda / 4$  length cable to „the end“ and back lasts one half of period, so now the double reflected wave is in phase with source which continues to inject energy in line /7/. Their superpositioning makes the energy of waves increase and the process of energy „feeding“ of stationary wave is repeating until it reaches breakthrough tension and thermogenetic losses are finally equal with wave energy...

Compatibility of this described mechanism is simply undeniable with EDQ model. Tesla hadn't been introduced with postulates of this model, but he managed to reach some sort of „basic“ electro-mechanical resonance with his device using numerous number of corrections. In those corrections it can easily be noticed the convergence of basic sizes to values our model proclaims. For instance (according to his notes / 3/) Tesla decreases the number of secondary coils from 40 in the beginning to 38, and then to ...20, 18, to final 17, and he attains the REAL value of wire length... Similar happened with primary, and especially with an extra coil. All those experiments are very well described in details in the diaries of his researches.

Finally, we can expose thoughts about „Tesla's coils secret“ and interpret structural energy transformations which are happening in Tesla's transformer. And we can describe how Tesla's „Magnifying Amplifier“ actually works.

Schematic presentation of Tesla's „multidimensional resonance“ is given in picture 1., while the picture 2. shows simpler version presented for the easier distinction between main parameters correlations.

Red color shows what classical scientific analysis can describe and count, and blue color shows non-Hertzian (my) version. It can easily be seen that classical Hertzian „resonance“ doesn't allow full „closing“ of energy transfer. Consequences of this are losses, because the cycle isn't finished, it is „half done“! Results are mostly just big „sparks“ without any use and small amounts of energy emitted in classical EM waves form. All together this represents almost whole loss of energy. But „Non-Hertzian“ analysis points to opposite effect!

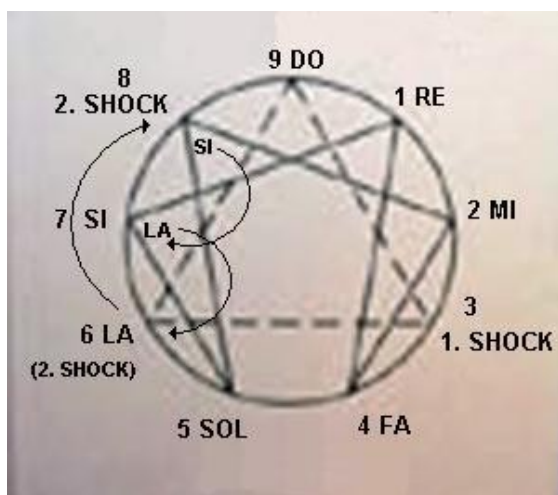
We have to emphasize that „final“ version of Colorado Springs „transformer“ was analyzed here, but Tesla usually used the „standing wave“ effect almost from 1893. (actually it was „spatial wavelength compression factor“...). The truth is, according to /7/, that the year 1894. is the year of Tesla's true spiral (velocity inhibited, distributed-element, slow wave transmission line resonator). Now we have the fact that the effect of increase of voltage GREATLY extends „maximal“ value  $V_{out}=V_{in}*(C_{pr} / C_{sec})^2$  which is allowed by circuit theory with concentrated parameters (in ideal case). This is the effect Tesla used earlier. The main difference is this: increase (amplifying) of voltage is limited only by insulation values between „top-load“ and its surroundings. And this is the case for resonator with distributed parameters, when losses are reaching zero. The goal here is to (for details see /7/) to achieve as smaller as possible structural losses and to KEEP as bigger as possible higher VSWR, which is opposite from what Hertzian waves do, work Marconi did, for instance. The fact Tesla was completely misunderstood in his time, doesn't have to make us wonder, but the level of today's misunderstanding is not appropriate for contemporary scientific knowledge. However, the real greatness of Tesla's achievements can be described now from an aspect of EDQ model, and that'll be illustrated in following section.

According to the classical-scientific explanations, primary and secondary of Tesla's "transformer" are in fact a powerful electric oscillator with low internal resistance, which supplied an extra coil - a quarter-wave resonator with distributed parameters. Due to the effect of standing wave voltage supplied to the output is proportional to the strength of currents at the entrance, which is why the secondary is designed as a current (not voltage) generator! Stresses that are obtained in this way and practically reach a few tens of millions volts - have really nothing to do with the transformer turn ratio ( $E_2 \neq E_1*(N_2/N_1)$ ), or induction ( $E_2 \neq M di/dt$ ) as the classic transformers do. As for energy radiance, to its (wireless) transmission, we don't know any single scientific model that is not based on classical Hertzian EM waves, which completely

INVALIDATES Tesla's basic idea and fully discounts a number of his notes that the system for wireless transfer of energy he used is based on the waves of an altogether different kind! According to the Tesla, his "transformer" from Colorado Springs broadcasts that certain kind of "other" kind of waves. As one can see in /1/, these waves correspond to the object  $k = +9$  of EDQ model.

From the aspect of our model, Tesla's "transformer" from Colorado Springs really is a very strong oscillator galvanically coupled with quarter-wave resonator, as interpreted by modern science, which enables the achievement of enormous stress, much bigger than it is possible to achieve in any other **known way**. However, the model indicates that the Tesla's transformer is much more complex machine. That machine is multidimensionally resonant, as "with itself" (some elements of machine with each other) and also with their entire environment, including the Earth (ie, macro-structure) and "vacuum" (micro-structure). Or, it can be said - in the terminology of the model, "outside" and "inside", which enables much more complex processes of energy "oscillation" and energy transformation some of the classic (Hertzian) device simply can't achieve, because the necessary conditions of "multidimensional resonance" are not fulfilled.

According P.D. Ouspensky (G.I. Gurdjieff), "IN SEARCH OF A WONDERFUL, fragments of an unknown teaching", one of the basic laws of the universe is the law of number 7 or law of octave. In order to understand the meaning of this law, it is necessary to observe the universe as something that is made up of vibration and which is quite analogous to the interpretations of Walter Russell's in "everything is light!" ... In this context, vibrations are, according to the accepted view in the west, continuous. This means, and is generally considered, that the vibrations occur constantly with strengthening or weakening effect until the initial force of momentum lasts. The initial force that caused the vibration, and that overcomes the resistance in the environment in which the vibrations take place ...



Picture 3: Eneagram of P.D. Ouspensky

The ancient knowledge establishes vibration from the discontinuity of vibration principle, which is quite identical to our terms of quantum density of energy (space-time). The principle of vibration discontinuity means definitive and indispensable feature of all vibrations in nature, either to strengthen or weaken, to develop, not uniformly, but with periodic acceleration and deceleration.

These laws are illustrated in Picture 3 by eternal movement enneagram (P.D. Ouspensky) to which the people looked from the most ancient times and searching beyond themselves what was in them, trying to construct a perpetual mobile the way mechanical machines are constructed (3D), while the true "perpetuum mobile" is a part of a complex, multidimensional, eternal movement and can not be created separately from that structure.

Observation of any form of vibrations through the octaves that are developed according to specific, generally applicable laws of nature, leads to the conclusion that if at the time when it is necessary, i.e., when given octave runs through some of its interval, "additional shock" enters into it. And that "additional shock" corresponds to the strength and character of the octave, so the octave will continue to develop smoothly in its original direction, without losing anything and without modifying their nature.

It is really very interesting to note (Picture 4) that the **only Tesla's construction** of "transformer" from Colorado Springs is amended with so-called extra-coil. And this construction is completely analogous to the transformation of the structure of energy contained in the fragments of an unknown teaching! The real curiosity is the fact that the terms (necessary) shocks can join the key elements of Tesla's "over-unity" machine - in which the first shock corresponds to the classical (ind., cap.) resonance of basic (primary,



Hertzian type) oscillator. In that case just the first condition is fulfilled, the first condition for the development of vibration (energy transfer) while the other shock is enabled only by resonance of "extra coil - top load" couple (!!!), which allows "closing the circle" and the achievement of FULL, MULTIDIMENSIONAL oscillation, i.e. transfer of energy without loss!!!

Namely, it is known that in classical (ind., cap.) oscillatory circuits, the energy oscillates between the coils and condensers (or more precisely - between inductive and capacitive elements of oscillatory circuit), changing its form from "electrical power of capacitors" to "electromagnetic energy of coils, and vice versa.

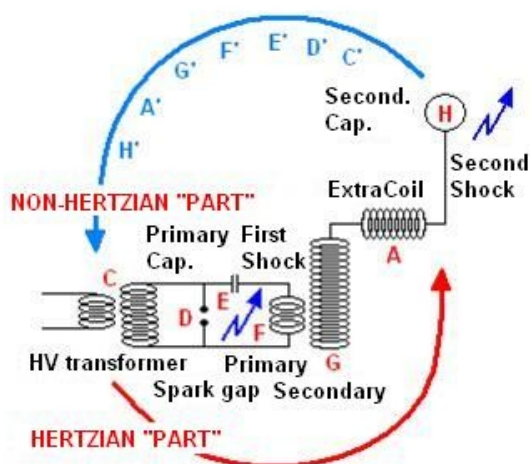
Teslas transformator also represents oscillator but of "dimensionally" higher "form", where the oscillations, flows and "transfer" of appropriate forms of energy, going through the traditional "outside"(in "here") and their results are Hertzian waves, but synchronously-simultaneously (in this case it does not involve the classical notion of simultaneity), and quite another, "unconventional" means, (according to EOU model /6/ as an integral part of our reality) "inside" (in "there"), by  $k = +9$  object. Or according to Tesla "completely new types of waves", WHICH ARE, obviously, THE REAL GOAL of adding the "extra coil", and the RIGHT "MEAN" OF TESLAS WIRELESS TRANSMISSION OF ENERGY, which is why Tesla is trying to undermine the more Hertzian waves, which only bother him.

From the analysis of the values of certain elements of the Teslas transformator, one can see that he used incredibly lucid structure and aligning LITERALLY ALL parameters, height and diameter of the coils, the number of coils, spacing between them, thickness of wire, and most importantly, its length. Nikola Tesla managed to adapt "size" of certain elements to each other, as on „this“ side and as with "other" side, to the incomprehensible precision.

- Thanks to a strong magnetic connection, the primary is allowed to interact with the secondary from "this side" by Hertzian waves, although their fundamental resonant frequencies are different.

- Galvanic connection between the secondary and extra coil enables strong mutual interactions from "this" side, but in the form of electricity, while the energy transfer by Hertzian waves weakens by magnetic coupling reduction to a minimum. Very careful construction and choice of coil elements, despite the apparent significant differences (eg number of secondary turns is 17, and the extra coil 100) allows their mutual resonance and interactivity from the "other" side, while the "values" corresponding forms of energy "from there" (Non-Hertzian waves) "see" are almost identical (see Pic. 2). This is the very essence of Teslas discoverie and the key difference of the specific model of Teslas transformator to the most modern replica that take account only of "Hertzian" (ind., cap.) properties of certain elements of the transformator.

- All modern researchers agree that the crown of Teslas hard work and years of research in the field of wireless energy transmission is his extra coil. From the aspect of our model it is, to say the least, a miracle! Unusual structure of the coils, beside its secondary resonance with "this" and "other" side, Tesla also achieved its resonance with the primary coil, of course, from the "other" side, allowing it (at the same time) the energy oscillation of energy between the primary and extra coil in "Non-Hertzian" form. In fact he achieved the "Non-Hertzian oscillator", transmitter of non-Hertzian waves - the first in the history of our civilization!



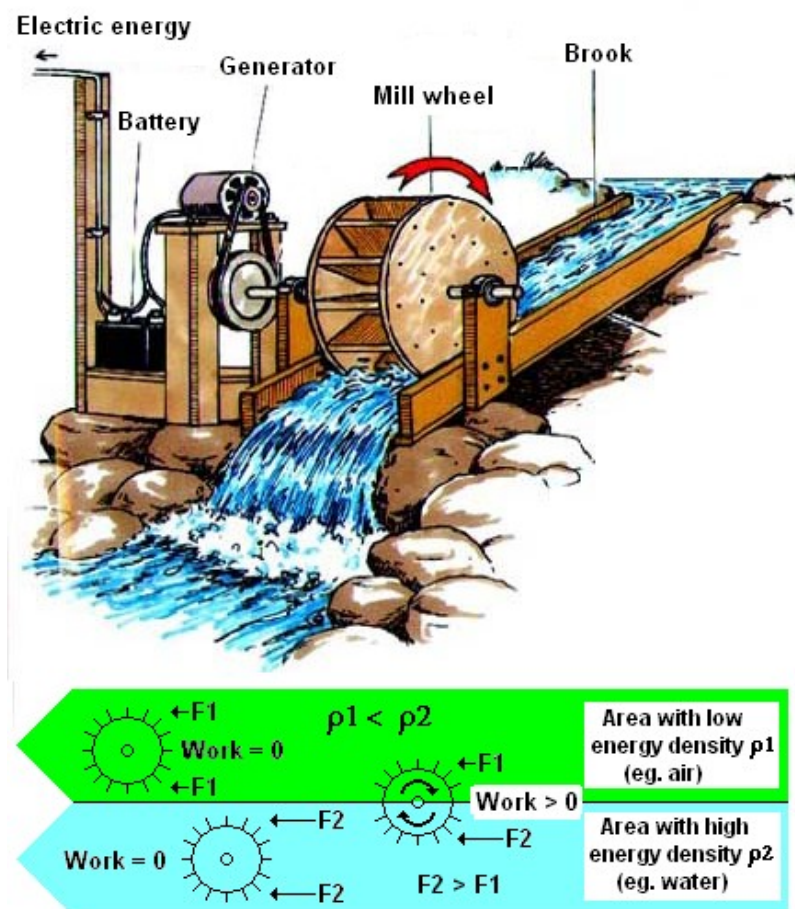
Picture4: Tesla's "Magnifying Amplifier" as Multidimensional Oscillator

From the done analysis it is quite clear that Tesla intentionally weakens Hertzian waves that are ineligible (attenuation is proportional to the inverse of the square of the distance) for the transfer of energy.

building "antenna that does not broadcast" classic, Hertzian form of EM waves, but that antenna broadcasts those waves "on the other side" in their "upside down faces form" of these Teslas waves.

This is the very essence of the idea of Tesla's wireless energy transfer (eg /8/), which even today many are not aware of. It is, as we showed, based on building  $k=+9$  object, model of quantized density of energy, which by its structure represents subluminal waves in the "here", as well as superluminal particles in "there", as are, in our model, only two different views of the same reality.

Our assumption expressed in /1/, that Tesla's Transformer represents some kind of **"mechanical laser"** is now further strengthened as the analogy is complete. Let us recall. In the process of stimulated emission of light (LASER) energy of xenon lamp - is resulting in the higher level of electrons in excited state within the "optical cavity" – ruby crystal for example. Returning to their basic level, they emit light, which is then reflected between the mirrors, to and from, giving rise to new electrons, etc. ...., and wave energy increases to a limit when the light "escapes" exit (semipermeable) mirror ... In Tesla's "Transformer" energy of "Hertzian oscillator" that is made of a combination of primary-secondary, is inserted in the "Non-Hertzian" oscillator that consists of an extra coil and primary, where the quarter-wave resonator is forming standing wave by successive reflections. The energy of that wave is gradually growing to the desired value.



Picture5: Multidimensional flows of energy

And finally - a few words about the receiver of Teslian waves. Personally I don't know any data which Nikola Tesla (perhaps) left regarding to what could be a "receiver" of his non-Hertzian waves. However, the EDQ model offers us reasonable features of such construction.

From the point of view of classical science – the basic element of the receiver (Hertzian) EM waves is the antenna, which may take the form of rod, dipole, helicoidally coils, or more complex form depending on the wavelength, the use of antenna and a range of other parameters, but they all aim to achieve the most favorable resonant conditions to detect changes in the volume strength (frequency, phase), electric and/or magnetic field.

When it comes to Tesla's technologies, according to our research, Tesla's (Non-Hertzian) waves include much more complicated form of energy fluctuations than electromagnetic waves. They include "synchronous-simultaneous vibration" of all interactions known in science for now, as "outside" and as

"within" the arbitrary but finite (concave, for the approved number of dimensions) part of a single, multi-dimensional, micro-macro structure of space-time (see /1/). This indicates that as one of their dimensionally lower projection of available 3D +1 T part of reality for us, can be expected to be unsustainable form of waves (Maxwell waves with negative wave numbers, see /2/) and also the corresponding mechanical and gravitational oscillations ! Concerning our interpretation of Tesla's Non-Hertzian waves, their "receiver" would have to be able to allow reception and transfer of energy to a much more complex way than electric dipole in the case of EM waves or membrane in the case of sound (mechanical) waves for example., where the flows of energy in "here" and "there" are quite analogous to the principles of the river wheel functioning, which is illustrated in Picture 5. It is clear that modifying blades when the wheel is only "on the one side" (eg. windmill) can get a certain amount of movement, but in that case it is several times smaller than the one that gets using multidimensional structure. From here it is clear why Tesla has no loss of energy, while with Hertzian waves it decreases with the square distance.

And to conclude. Expecting form of the Tesla's waves receivers should be identical to the structure of what is on their transmitter side of the generator - therefore, to an extra coil!

Its technical, overall-electric parameters are deriving from actual working conditions and significantly differ from the values that are characterized by transmitting "extra coil". The reason for this is much higher energy density on the side of the transmitter for which local deformation of space-time structure is appearing and expression of relative effects - which result in a change to a series of parameters, including permeability and permittivity of the environment. Tesla had this in mind (although he was a great opponent to relativity theory) and his operating frequency calculations at full power unit are significantly corrected in comparison to the frequency of small power at work which can be found very precise information in his diary from Colorado Springs /3/.

Given the ideas put forward in more of our works /6/, where we point out to the number of analogies between the number of atoms, solar systems, Shuman spectrum, Tesla waves, and other (stable) objects of Unity, it is very easy to see that Tesla's transformer in Colorado Springs presents "reduced" variant of the Solar System, which is itself a "smaller" version of (Eternal Oscillating) Universe since it respects the same laws, harmony and overall harmony of the visible to the entire, vast scale from micro to macrostructures...

Copying nature, Nikola Tesla immensely liked and respected, he was able to actualize one of the many ideas designed to benefit Mankind. Will this option be used in our near future, it's the fact that no longer depends on him personally ...

All our settings are very easy to verify in practice. The possibilities are many and various. From eg. "Comptons effect" for the area of the EM spectrum that our model is "assigned" to Tesla waves (in our model, the expected change in frequency of reflected wave is just a few Hertz) to eg. measuring the phase difference of signal on an extra coil (expected time of tunneling is in the time order in microseconds), in this model it is attributed by a role quite analogous to the kind "tunneling device" has, for example, in Superluminal experiments of G. Nimtz's /2/ ...

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