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(54) **METALLIC ELECTRICAL CONDUCTORS WITH NO SIGNIFICANT CURRENTLY USED ELECTRICALLY CONDUCTIVE METALS OR ALLOYS IN THEIR COMPOSITION, LIKE: COPPER(CU), SILVER(AG), ALUMINUM(AL), GOLD(AU), PLATINUM(PT), RHODIUM(RH), IRON(FE), BRONZE ETC. APPLICATION: TRANSPORT AND PROCESSING OF WAVE SIGNALS THROUGH ELECTRICAL SYSTEMS (ANALOGUE OR DIGITAL) MUSIC, VIDEO, DYNAMIC IMAGERY, ECHOGRAPH, RMN, SONAR, ETC**

(57) Wave signals transported through an electrical signal, (in their original analogue form or digitally encoded), are strongly influenced by the resonance properties of the environment they travel, both mechanically and electrically.

During the electrical transfer of a dynamic signal, the electrons vibration and ultimately the current flow are dependent on the resonant properties of the geometrical internal structure of the conductive material they cross.

The signal is acting like a wave and has a flow through the path that is given by the construction of the entire system, strongly influenced by the resonance that takes place at molecular level (molecular resonance), depending on the crystalline geometrical structure of the traveled environment.

This structure's resonant properties supersedes the influence of the static electrical conductivity measured for a constant sine wave, like a 50Hz AC signal for example. As a consequence, measured conductivity becomes secondary to structural properties of the chosen electrical conductor if signal quality is a first priority.

A conductor based on the above described properties will help achieve superior signal transmission and a better resulting quality.

Conclusions:

When transporting waves like recorded music by the means of an electrical signal, the resonant crystalline structure of the electrical conductor is of paramount importance. A metal that shows a constant compact symmetrical crystalline geometrical structure will favor the flow of the transmitted information, diminishing resonant influences from the environment and improving the precision of the resulting transported and processed wave.

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Description

Introduction:

[0001] It is well known and debated among audiophiles, the fact that by using specially designed cables (defined as High Quality based on their construction and materials) in connecting electrically the components of an audio system, the quality of the reproduced musical sound waves is influenced significantly.

[0002] Similar facts apply to the video signals.

[0003] There is no complete explanation for that, based on scientifically known facts that define the transfer of electrical signals. Conductivity, resistivity and electro magnetical interferences should not have such a dramatic influence on the resulted reproduced sound. On top of that, the quality differences are not measurable by known methods, but clearly audible for the discerning human ear.

[0004] That is mostly due to the fact that a sound wave can be described as having at least 4 dimensions (strictly time related elements included) and measurement is using equipment for 2 or at most 3 axis. Also, measurements are only checking freezed moments, like pictures, of a dynamic process that reacts actively to the accessed environment and has transient resonant reactions to that environment that are essential to the result(outcome).

DESCRIPTION:

[0005] Waves or any other type of dynamic signals transported through an electrical signal, (in their original analogue form or digitally encoded), are strongly influenced by the resonance properties of the environment they travel, both mechanically and electrically.

[0006] During the electrical transfer of a dynamic signal, the electrons vibration and ultimately the current flow are dependent on the resonant properties of the geometrical internal structure of the conductive material they cross.

[0007] The electrical signal has a behavior similar to a wave and consequently has a flow through the given path, that is influenced (determined) by the construction of the entire system. The transfer and processing of the electrically embedded wave is strongly influenced by the resonance that takes place at molecular level (molecular resonance), dependent on the crystalline geometrical structure of the traveled environment;

[0008] A lesser organized environment will favor random resonances that will act as turbulence, but a better organized structure, compact and symmetrical, will favor the flow of information through the respective environment.

[0009] This structure's resonant properties supersedes the influence of the linear electrical conductivity measured for a constant sine wave, like a 50Hz AC signal or linear DC for example. As a consequence, measured conductivity becomes secondary to crystalline structural properties of the chosen electrical conductor if signal quality (accuracy) is a first priority.

[0010] A similar behavior is observed in fact for any dynamic signal, that has variable properties at different time moments (changing shape on x,y and/or z axes). Any additional variable will enhance the possibility of turbulence by adding resonance tendencies.

[0011] For example, for an electrical audio signal, the x and y axes represent the frequency and intensity, z axle is represented by phase-shifts, and finally the time is the fourth axle we mentioned in the introduction. The level of energy transmitted is given by the intensity of the wave at each moment and defines the dynamic nature by its variability.

[0012] The resonances to be considered as influencing the transport and resulted transmitted electrical signal are related to the following:

1. Frequency as an expression of axle x;
2. Intensity represented on axle y;
3. Phase rotation shown on axle z;
4. Time as defining the position in space of each wave element;
5. Intensity variations, that are also acting as an added layer of variable frequency, resonance sensitive, visually observed as a variable pulsating frequency, but also capable of adding tendencies.

[0013] We have defined here five resonance dependent variables, that we conveniently name: X,Y,Z,T and Vi(variable intensity).

[0014] Even though only x and y are addressed by the processing of the signal, all these five variables will be influenced by the different resonance properties on the environment.

[0015] While crossing conductors and being processed in electronic circuits, the signal should keep Z, T and Vi unchanged, but environment conditions can make that task difficult to achieve.

[0016] The processing of the signal is done on the x and y axes (conversion from digital to analogue, tonal adjustments, volume amplification,etc.) When amplifying an audio signal, only the y(intensity) parameter ahould be processed, but its variability (Vi parameter) should remain identical to the source(unchanged).

[0017] By using an electrical conductor chosen based on its resonant structural properties as opposed to the measured electrical conductivity given by resistivity measurements, any wave or other type of dynamic signal transported through conductive means will exit that conductor with enhanced properties due to the chosen traveled resonant environment.

[0018] The application is very wide, comprising of any wave transported by the means of an electrical signal. That includes the power supply of such devices used for processing, decoding and/or amplifying the signal, that will draw from the mains a fluctuating current dependent

on the shape of the processed signal, because in the same manner, when powering the electronic equipment used in the process, due to the fact that the current drawn from the mains is also variable, depending on the x,y and Vi values, it is in fact a dynamic signal, and consequently the same rule applies to conductors for the AC used to power up the power supplies of the respective electronic equipment

[0019] A conductor based on the above described properties will help achieve superior signal transmission and a better resulting quality (precision) of the transmitted or processed information. Also, resonance properties of the room acoustics, system components mechanical build as well as other resonant structures influencing the music reproduction in the respective environment will have a diminished impact on the result, consisting of the reconstructed wave (music) perceived by the listener

RESEARCH:

[0020] Research was conducted using complex audio signals consisting of recorded music of various kinds.

[0021] Differently organized crystalline structures were used, consisting of various transition metals, including alloys. A spectacular improvement was noticed for the metals and alloys with simetrical and compact geometrical crystalline structure that could provide a stable and predictable resonant environment favoring an improved signal flow through the conductor.

[0022] Several sound signatures were observed, particular for each and every crystalline structure, influencing different elements of the audio spectrum, like speed, frequency range, control, noise floor, layering, soundstage etc. These influences were extrapolated to the reaction of room acoustics and other resonant structures from the same environment, including mechanical build of system's components.

[0023] The currently known metals used for electrical signal transmission, like Iron(Fe), Aluminum(Al), Copper(Cu), Silver(Ag), Gold(Au), Platinum(Pt) or alloys like Bronze had a moderate to bad influence compared to better organized structures, compact and symmetrical, with lesser conductivity properties, but showing more predictable and constant resonant behavior.

[0024] Superior compact Crystaline structures, represented by transition metals with body centered symmetrical latices and a conductivity between 3.5×10^{6}(ohm-meter)$^{-1}$ and 35×10^{6}(ohm-meter)$^{-1}$, will act as optimized environments and will help achieve a significantly better signal transmission and/or conditioning of the signal before processing it. Consequently, the processing parts consisting of transformers, electronic boards, coils, etc, will perform at a higher level, achieving a better processed signal as well as an increased processing speed, by not having to deal with turbulent resonances, but a continuous, better organized, resonance enhanced flow.

[0025] Equipment used for testing comprised of various electronics (power supply, CD Player, Streamer, Powered Switch, amplifier, DAC, speakers) from acclaimed manufacturers

[0026] Prototypes consisted of :

1. connecting cables constructed using the above described metallic conductors (replacing regular conductors or used only as signal balancing parts in-between regular conductors):

    a. Coaxial digital using BNC plugs
    b.AES/EBU digital using XLR plugs
    c.Single ended Analogue using RCA connectors
    d.Balanced Analogue using XLR connectors
    e.Speaker cables
    f.power cables (bringing AC current from the outlet to the active units of the system)
    g.Ethernet cables using ethernet connectors for the network

2. Modules built using at least 7 inch long conductors with diameters ranging from 1 to 20mm installed at the end point of each power cable or in a power conditioning unit before powering those units (conditioning AC current from the outlet before reaching the active units of the system)
3. Specially designed conductive structures, that can be as simple as conductive bars or cables. but made from the above described materials, used as balancing environments, in-between regular conductors,
4. connected directly to the power inlet(AC230V) of each device. The diameter was chosen adapted to the power requirement of each component based on peak power consumption . The connecting plugs used were IEC

The intended approach would be to implement these modules in the design of the above described components (electronics).

[0027] The tests were conducted in various environments, using different systems (equipment), and the results were analyzed by various subjects, both experienced and unexperienced, using visible and blind tests.

[0028] The conclusion was overwhelmingly positive, as all listeners, no exception, confirmed beyond any doubt, a significant increase in perceived quality.

Conclusions:

[0029] When transporting waves like recorded music by the means of an electrical signal, the resonant crystalline structure of the electrical conductor is of paramount importance. A metal that shows a constant compact symmetrical crystalline geometrical structure will favor the flow of the transmitted information, diminishing resonant influences from the environment and improving the accuracy of the resulting transported and processed wave.

Claims

1. Electrical conductors used for the transfer or processing of wave information, like Audio, Video, Dynamic imagery, Echograph, RMN, Sonar, etc. or any other Dynamic signal made of metals other than any currently used (Copper-Cu, Aluminum-Al, Bronze, Silver-Ag, Gold-Au, Platinum-Pt, Iron-Fe, etc.) chosen based on their resonant properties as opposed to their measured conductivity (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends)

2. Audio cables, analogue or digital, including network cables and power cables(AC100-400V, 50-60Hz) for audio components built using electrical conductors from metals other than any currently used(Copper-Cu, Aluminum-Al, Bronze, Silver-Ag, Gold-Au, Platinum-Pt, Iron-Fe, etc.) chosen based on their resonant properties as opposed to their measured conductivity, (combined with minimum 5% in length of highly conductive metal-copper, silver, gold or any mix of those-at both ends) Application : Audio, Video, Dynamic imagery, Echograph, RMN, Sonar, etc.

3. Power modules for AC current 100-400V, 50 or 60Hz, described as high cross section transfer bars with diameters ranging from 1mm to 20mm depending on the power requirements of the treated unit, with lengths between 80mm and 1500mm, installed at the entry point of the power supply or in-between power boards using the above described metals (metals other than any currently used (Copper, Aluminum, Bronze, Silver, Gold, Platinum, Iron, etc.) chosen based on their resonant properties as opposed to their measured conductivity.) Application : Audio, Video, Dynamic imagery,
Echograph, RMN, Sonar, etc.

4. Any electrically conductive construction used for treating a wave-based electrical signal made from metals other than any currently used (Copper-Cu, Aluminum-Al, Bronze, Silver-Ag, Gold-Au, Platinum-Pt, Iron-Fe, etc.) chosen based on their resonant properties as opposed to their measured conductivity, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends). Application : Audio, Video, Dynamic imagery, Echograph, RMN, Sonar, etc.

5. Electrical metallic conductors with round cross-section used for transporting AC current (100V-400V) to the power supply of electronic equipment, domestic or industrial, following the rule of being chosen for their internal structural resonant properties, as opposed to their measured conductivity, characterized as transition metals with body centered symmetrical crystalline structure, and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$.
Material could be different for Ground, Live and Neutral, but following the same rule.

6. Power modules described as rigid bars with diameters ranging from 1mm to 20mm, of various lengths, used for the treatment of AC Current (100-400V, 50-60Hz) before feeding the power supply of electronic equipment, domestic or industrial, made from various metallic conductors, following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Material could be different for Ground, Live and Neutral, but following the same rule.

7. Cables made from various round cross-section solid metallic conductors used for transporting AC Current(100-400V) to the power supply of Audio components, following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$.

8. Cables made from various round cross-section solid metallic conductors used for transporting any kind of digitally-encoded dynamic* signals, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends),following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$.Metal composition should be constant(homogenous) on each section of the conductor

9. Cables made from various round cross-section solid metallic conductors used for transporting any kind of dynamic* analogue signal, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than

35×10^{6}(ohm-meter)$^{-1}$. Metal composition should be constant (homogenous) on each section of the conductor

10. Any electrically conductive construction used for treating a dynamic* electrical signal, analogue or digital, made from various round cross-section solid metallic conductors, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Metal composition should be constant (homogenous) on each section of the conductor.

11. Electrical conductors used for the transfer, processing or conditioning of wave based information, like Audio, Video, Dynamic imagery, Echograph, RMN or other medical equipment, made from various round cross-section solid metallic conductors, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Metal composition should be constant (homogenous) on each section of the conductor

12. Electrical metallic conductors with round cross-section used for transporting digital-encoded audio signals, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Ground conductor should be made of highly conductive material (Copper, Silver, Gold or any mix of those). Metal composition should be constant (homogenous) on each section of the conductor

13. Electrical metallic conductors with round cross-section used for transporting any dynamic* electrical signal, (combined with minimum 5% in length of highly conductive metal (copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 3.5×10^{5}(ohm-meter)$^{-1}$. Metal composition should be constant (homogenous) on each section of the conductor

14. Cables made from various round cross-section solid metallic conductors used for transporting any kind of dynamic* electrical signal, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Metal composition should be constant (homogenous) on each section of the conductor

15. Cables made from various round cross-section solid metallic conductors used for transporting audio analogue or digital signal, (combined with minimum 5% in length of highly conductive metal(copper, silver, gold or any mix of those at both ends), following the rule of being chosen for their internal structural resonant properties, as opposed to their conductivity, characterized as transition metals with body centered symmetrical crystalline structure and an electrical conductivity of more than 3.5×10^{6}(ohm-meter)$^{-1}$ and lower than 35×10^{6}(ohm-meter)$^{-1}$. Material should be the same (not mixed) on each section of the conductor.

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EUROPEAN SEARCH REPORT

Application Number
EP 22 21 2310

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2020/303092 A1 (SMITH JEFFREY [US]) 24 September 2020 (2020-09-24) * figure 3 * * paragraph [0086]; claims 1-19 *	1-4	INV. H01B1/02
X	US 2007/284127 A1 (FORBES LARRY ROBERT [US]) 13 December 2007 (2007-12-13) * claims 1-20 * * paragraph [0096] * * paragraph [0083] *	1-4	
X	WO 2006/005969 A1 (AVGERIS PETER [GR]; KOURITIS DIMOSTHENIS [GR]) 19 January 2006 (2006-01-19) * claim 1 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	12 June 2023	Lehnert, Andreas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 22 21 2310

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-06-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		WO 2020198152 A1	01-10-2020
US 2007284127 A1	13-12-2007	NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82