

ANALYSIS OF PATTERNS OF HEALING SOUNDS USING CYMATICS

BHAURAO S. BADAQ AND AJAY A.GURJAR

*Sipna college of Engineering And Technology /Department of Electronics and Technology
Amravati, India*

sopanbadak@gmail.com, _prof_gurjar1928@rediffmail.com

ABSTRACT: The sound enters human body by two different ways as 1.Through the ears into the brain (hearing effect) 2. Directly into the organs and tissues (Vibrating effect) all of us are familiar with the first type of entry mechanism as this is what we hear. Its effect is the audible sound which is process by the brain. The second mode is entirely different. In this case sound wave frequencies pass through the body organs and tissues. In this process, altering the vibratory resonance of the body cells into healthier pattern and getting converted into electrical stimuli. We exist in universe that consists of energy at different frequencies. Einstein proved this. Frequency defines it. Every organ, bone, tissue and other parts of the body have healthy resonant frequency. When that frequency changes that part of the body vibrates out of harmony and this is what is termed as diseased. In order to return to the resonant frequency and for healing to occur some frequencies plays an important role called as healing frequencies or healing sounds.

In this research work patterns of healing sounds using cymatic are analyzed. After observing and comparing all the patterns of musical notes with patterns corresponds to temple bells. We could conclude that some of the musical notes has a power to vibrate energy centers of a human body and it can heal diseased if any by correcting the resonant frequency.

In this research work analysis is done by making sound visible using Cymatics. Cymatics is a study of wave phenomenon.

KEYWORDS: Cymatics, sound, Images, standing waves, Chadalani plate.

LITERATURE REVIEW

On July 8,1680, the English experimental philosopher, Robert Hooke broke, broke the visible sound barrier when he spread flour on a small glass plate and passed a violin bow along the edge of the plate different pattern are observed.[2]

About 100 years later this phenomenon was re-discovered by the German physicist, Ernst F.F Chladni known as the father of Acoustics, who laid the foundation for the study of physics of sound.[2]

In 1831 the great experimental scientist Michael Faraday, published a paper of describing his observation of geometric 'nodal forms'. Appear in granular solid under the effect of vibration.[2]

In 1885 an American, Margaret watts Hughes, a singer and 'devout Congregationalist', begin experimenting with the 'eidophone' a small saxophone-like instrument with a membrane spread tightly over the bell upon which she spread various powders and liquids by singing long, sustained tones into this device, she was able to create finely detailed images mirroring the brachiated structure of plants and flowing water. [2]

Jumping ahead to the 1960s in the small town of Dornach in the foothills of the Swiss Alps. Dr Hans Jenny constructed a similar device, which he called a tonoscope, to transform the human voice into visual 'sound figures'. He had developed a toy which was used to teach deaf children to speak. Further Jenny uses frequency generator and amplifier to get different images Jenny coined the term 'Cymatics' (Kyamatics in German) from the Greek to kyma (pertaining to waves) [2]. Acoustic engineer and long-time UK Cymatics researcher, John Reid has developed an electro-acoustic device enabling one to visualize the voice, music and other sound sources Jeff Volk tells how Sound frequencies used in Cymatics can tone up our body and tune up our mind, cyamatherapy which uses specific sound frequencies to stimulate muscles, organ, even bones, to their natural state of resonance.[2],[3]

INTRODUCTION

In the beginning was the 'word' or in Sanskrit, 'Nada Brahma', the world is sound. [3] The amazing power of sound to change and shape matter is fundamental to all life and many spiritual technologies. Cymatics is the Study of wave phenomenon, which emerged as a distinct scientific discipline in the 1950s. Robert Hooke, Ernst chladni, Margaret watts Hughes and Hans jenny were the initiators of Cymatics each of whom found wonder in The changing patterns as they animated matter reacting sound. We used 110 Hz to 523Hz audio signal for the experimentation which corresponds to A3 to C5 Musical Notes. As we gradually shift from low frequency to higher one the pattern corresponds to it become more complex. As a unique pattern is obtain for each frequency it can be used in telecommunication as one of the coding techniques as that of PN sequences for secured communication. Cymatics work on the principle of standing wave patterns and different patterns are developing because of number of nodes and antinodes develop on the plate. [5]



Figure.1 Chakra's in the Human body

EXPERIMENTAL SETUP

Cymatic image development

Figure.2 Denote the functional blocks to generate cymatic images [1]. Musical tones A3 to C5 having a frequency range from 110Hz to 523 Hz are generated using a function generator and are applied to the audio amplifier. We have chosen this frequency range by comparing Chakras, body

organ and musical note frequencies. Figure 9 and 10 shows bar graph for frequency range. Audio amplifier is used to develop the desired level of vibration on the plate. Speaker is connected to the audio amplifier and plate is attached properly to the speaker so that maximum vibration should reach to the plate.

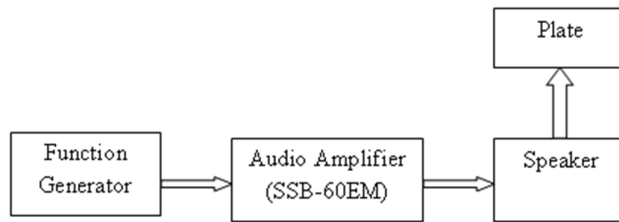


Figure.2 Block diagram for development of cymatic images

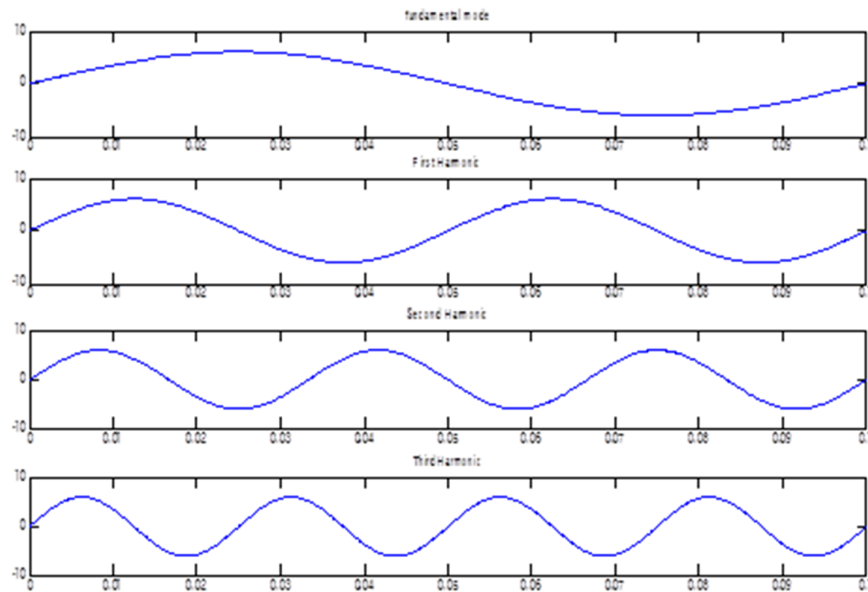


Figure.3 explains how the harmonics are developing on the plate

Hypothesis

Two hypotheses are used to change the shapes of visualized sounds [1].

$$\text{Velocity} = \text{Square root of (Bulk modulus/ Density)} \quad (1)$$

$$\text{Velocity} = \text{Wavelength} * \text{Frequency} \quad (2)$$

Hypothesis: Relation between the type of board and the shape on the board According to (1), sounds that have same frequency have different velocities because of the bulk modulus of their media. If the velocity varies, according to (2), the wave length would change. This change indicates that the Distance between two consecutive nodes would differ according to its material. The lines are formed by particles on the node, so the change of location of nodes would result in the change of the shape. Figure 3 shows how harmonics are developed on the plate.

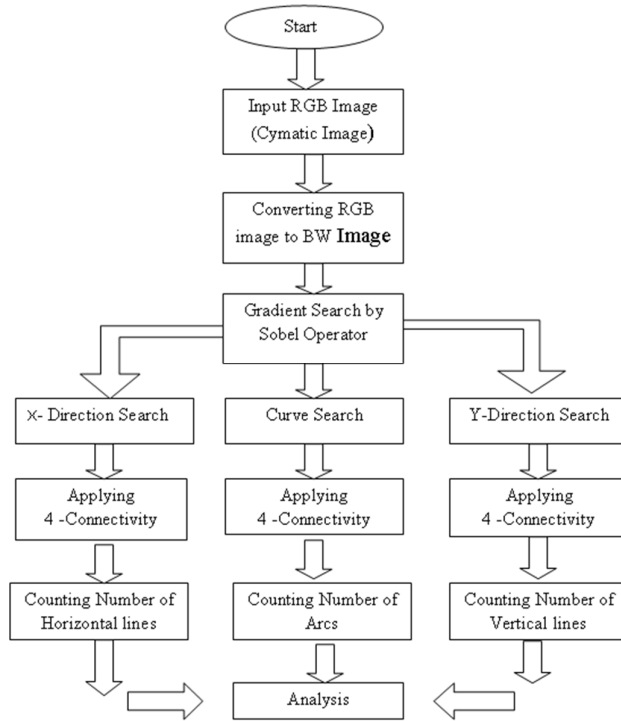
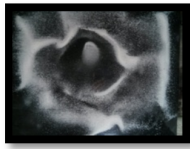
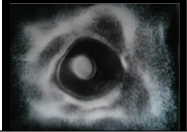
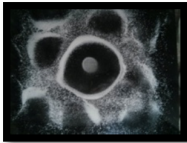
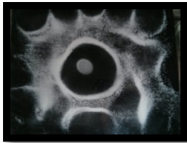
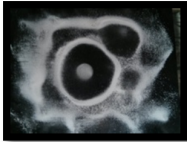
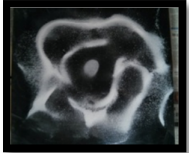
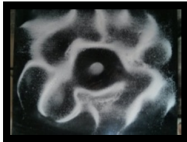
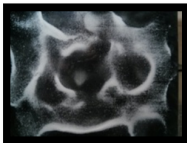


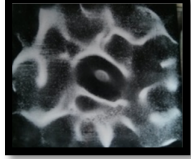

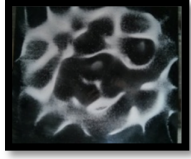
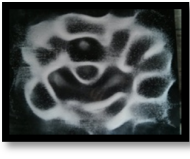

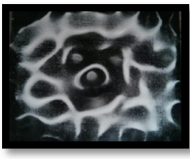
Figure.4 Flow Chart

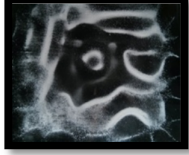
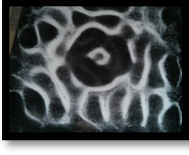

ANALYSIS RESULTS

Table 1: Cymatic Images of healing sounds

Sr. no	Sound to Image	
	Sound Frequency(Hz)	Corresponding Image
1	110	

2	123	
3	131	
4	147	
5	165	
6	175	
7	196	
8	220	

9	247	
10	262	
11	294	
12	330	
13	349	
14	394	

15	440	
16	494	
17	523	

Comparison of Cymatic patterns

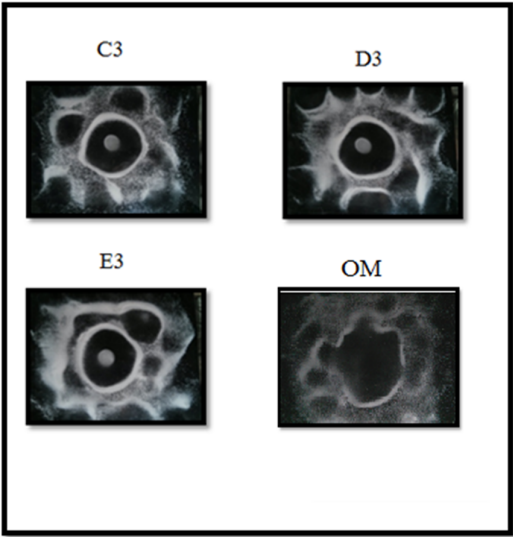


Figure.5 comparison of patterns of OM and musical notes

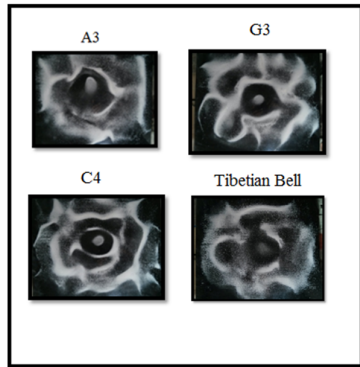


Figure.6 Comparison of Patterns of Tibetan bell with musical notes

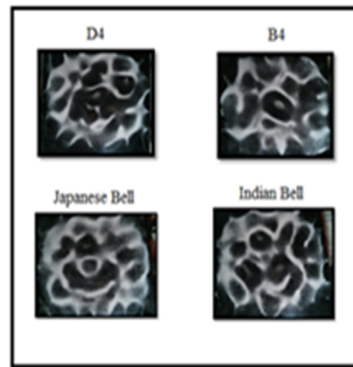


Figure.7 Comparison of Patterns of Indian, Japanese bell with musical notes

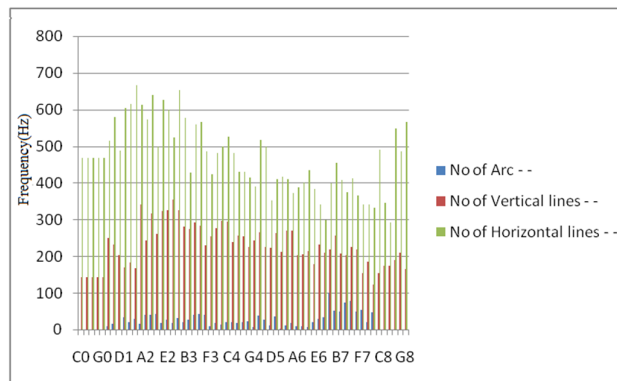


Figure.8 Bar Graph for number of Arc, vertical and horizontal lines

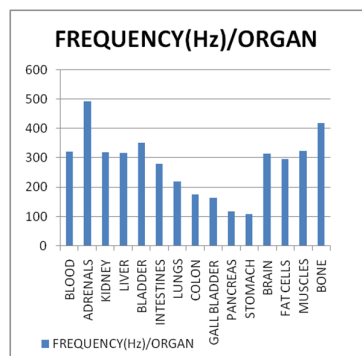


Figure.9 Organ & its frequency

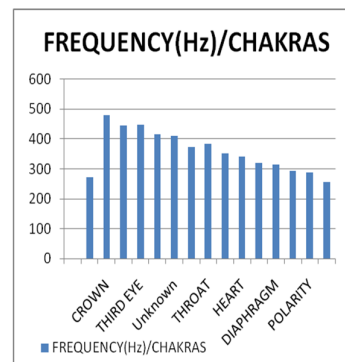


Figure.10 Chakras & its frequency

CONCLUSIONS

From above results shown in table I. It is clear that corresponding image pattern's complexity increases as the sound frequency increased. Cymatics can be used as a transformation tool to convert Single dimensional signal (sound) into two dimensional signals (Image). It provides new dimension to analyses sound. It can be used to provide healing effect through visualization also visualization will lead people to appreciate auditory art such as music. In the cymatic pattern of these notes a ratio of approximately 1:2 is observed between number of vertical lines and horizontal lines. The ratio of 1:2 is observed only for A3 to C5 Musical Notes. Figure 8 shows the relationship between number of arc, vertical and horizontal lines. Figure 4 shows the flow chart to calculate number of arc, vertical and horizontal lines.

In addition to A3 to C5 Cymatic patterns. Cymatic pattern of Indian bell, Japanese bell and Tibetan bell was analyzed. From figure5, figure 6, figure7 it is observed that a pattern of A3, G3, C4 notes resembles a pattern of Tibetan bell. And a cymatic pattern of B4, D4 notes resembles a pattern of Indian/Japanese bell.

From this we could conclude A3, G3, C4, B4, D4 frequency notes has a power to vibrate energy centres in human body and it can heal diseases if any by correcting resonant frequencies. Figure 1 shows the energy centres in human body. Again in the pattern of Indian/Japanese bells a number of intersection between vertical and horizontal lines more that is these patterns contents large number of vertical and horizontal standing waves. Cymatic pattern for C3, D3, E3 notes are resembles more like cymatic pattern of OM sound. Where the numbers of arc are more as compare to others which is a primordial sound that is a sound of the universe. Since every substance is having different resonance frequency, every plate creates different patterns. Even though all the results are not identical, overall patterns are similar since the basic principles lying on the experiments are same. Our database is collected by using Acrylic sheet and the salt. After observing all the patterns in the chart we could conclude that patterns become more complex as frequency become higher. If frequency becomes higher there are more nodes and antinodes.

ACKNOWLEDGMENT

I give my sincere thanks to Sipna College of Engineering And Technology Amravati for providing me the platform to work. I am also thankful to my guide for their valuable guidance. I am thankful to my friends who have helped me directly and indirectly.

REFERENCES

- G You Jin Oh and Sojin Kim , "Experimental Study of Cymatics" IACSIT International Journal of Engineering and Technology, Vol. 4, No. 4, August 2012
- Cymatics insights into the invisible world of sound 12.issue 71 caduceus
- Kindred spirit issue 60 autumn 2002.
- www.cymaticsource.com/pdf/caduceusarticle.pdf
- Sound vision patterns of vibration in sound,symbols and the body a thesis submitted in partial fulfilment of the master of design Rachael Linton at Institute of communication design Massey University Wellington New Zealand 2008.