

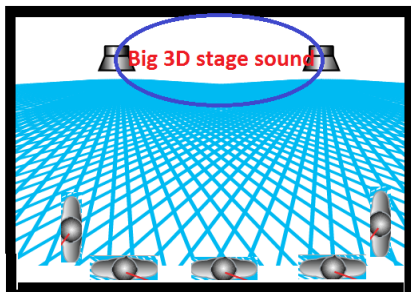
# The future of sound (friendly sound)

HDSS Straight solid sound wave without compressed ( below blue draft) is balancing to eardrum.

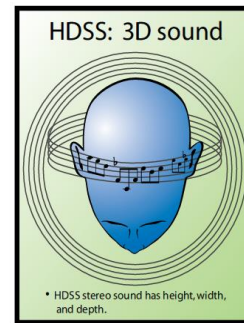
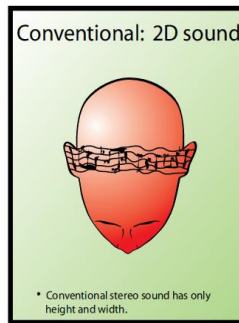
## HDSS technology has 3 unique advantages:

1. **Super clear**-----much clear than hearing aids.
2. **Wide Soundstage**---HDSS makes soundstage wide and allows user (as same as rich man sit in front of stage) enjoy very wide soundstage.
3. **Stress reduction**----Noise and stress reduce at 14.32% .(please refer to below attached)

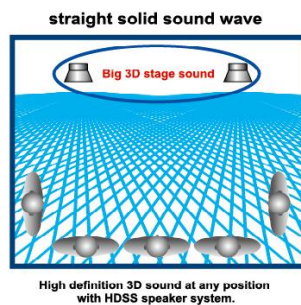
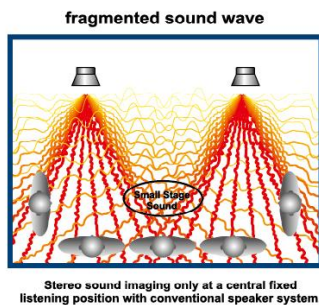
### No boundary sound ( free body)



High definition 3D sound at any position by HDSS speaker system



## Soundwave is the key to decide sound quality



- a. Good sound wave: Straight, solid in balancing to ear drum ( as above mentioned blue graph)
- b. Bad sound wave : Fragmented, tsunami in unbalancing to ear drum.( as above mentioned red graph)

## The future of sound----the challenge of engineer

Engineers has been trying since 100 years ago for making sound and picture matched each other but failed. Users is always forced to sit at small center point to catch stereo sound. However center point is very narrow , while people sit on both side are not able to get stereo sound.

It is unfriendly to users.

## Directional Tsunami sound wave has 3 fatal defects

Why speaker cone ( wide range) generate directional sound wave? Why soundstage is small?

### A) Directional sound wave----- 20,000 pressure by 20,000 frequency response

Speakers generate 20,000 different pressure by 20,000 different length of wave. It causes sound wave compressed to center certain area, when cone paper is compressed by internal turbulent. As a result, there are 3 fatal defects as below listed

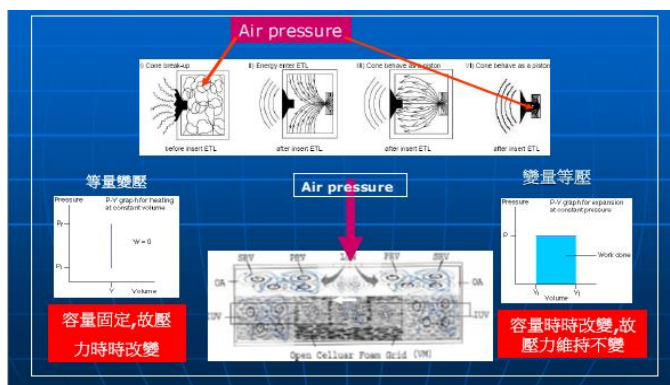
1. Sound stage becomes small.
2. Unclear and harsh.
3. Stress is high and fatigue.

### B) Must of driver movement

Speaker must move like piston. The environment of chamber should be always kept stable for cone to work in linear.

## Only solution: 20,000 box volume for 20,000 frequencies

ETL ( hardware device ) keep speaker box volume changeable to 20,000 different volume to allow 20,000 different length of wave to adapt . Any frequency generated by cone paper enter ETL is dissipated by ETL. Hence it is very stable behind cone paper and cone paper can be kept in piston moving. ( please refer to below graph)



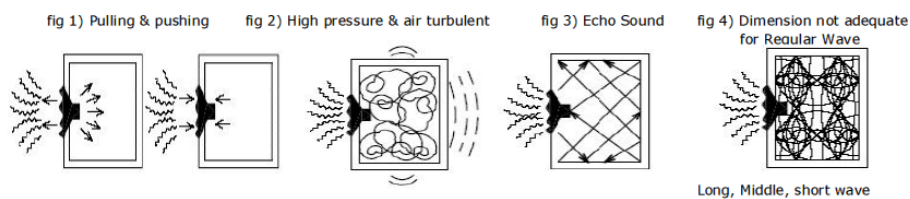
## Speaker box (or earphone) : Traditional 4 problems

Conventional speaker has serious problem such as vibration, echo, standing wave, break-up, because of internal pressure. Please refer to below graph

1. **Pulling and pushing:** Cone paper is easier to break up when generate 20,000 frequency response.
2. **Turbulent impact cone movement**
3. **Echo sound remains**
4. **Vibration .**

### B) Reasons for distortion from conventional loudspeaker System

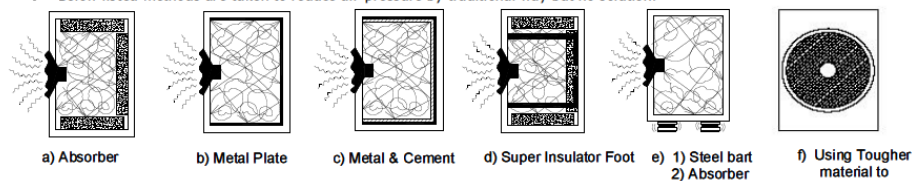
- Outside enclosure sound is poor, because cone is crippled by internal pulling and pushing from air pressure.(fig 1).
- Internal enclosure sound (fig 2,3,4) is fighting with outside enclosure sound.



Engineer try to solve those problems by put in absorber, metal plate, cement, steel bar, using expensive cone driver, but still no solution. Please refer to below graph

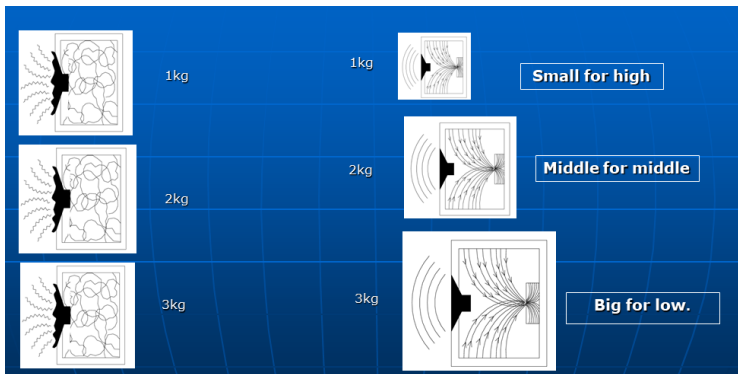
### C) Method by conventional way but no solution

- Below listed methods are taken to reduce air-pressure by traditional way but no solution.



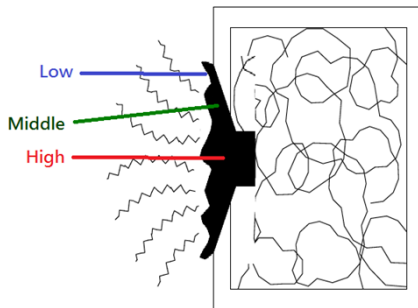
## Pressure vs Volume size

- a. Different pressure: 3 same size of box ( left graph)-----pressure is different when different air volume ( Ex. 1kg, 2kg, 3kg) is put in.
- b. Same pressure: 3 different in ratio box ( right graph) ----pressure is same when put in different air volume ( Ex. 1kg, 2kg, 3kg)



## Fixed volume problem-----causes 20,000 different turbulent

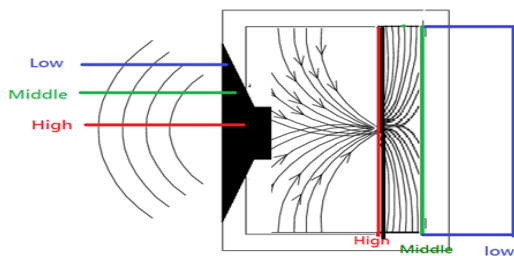
Speakers generate 20,000 different pressures by 20,000 different lengths of wave. It causes sound waves to be compressed to center certain areas, when the cone paper is compressed by internal turbulence. However, an earphone (or speaker) has only one fixed volume, that does not allow different sound waves to adapt. As a result, turbulence inside the enclosure attacks the cone edge to cause compressing movement.



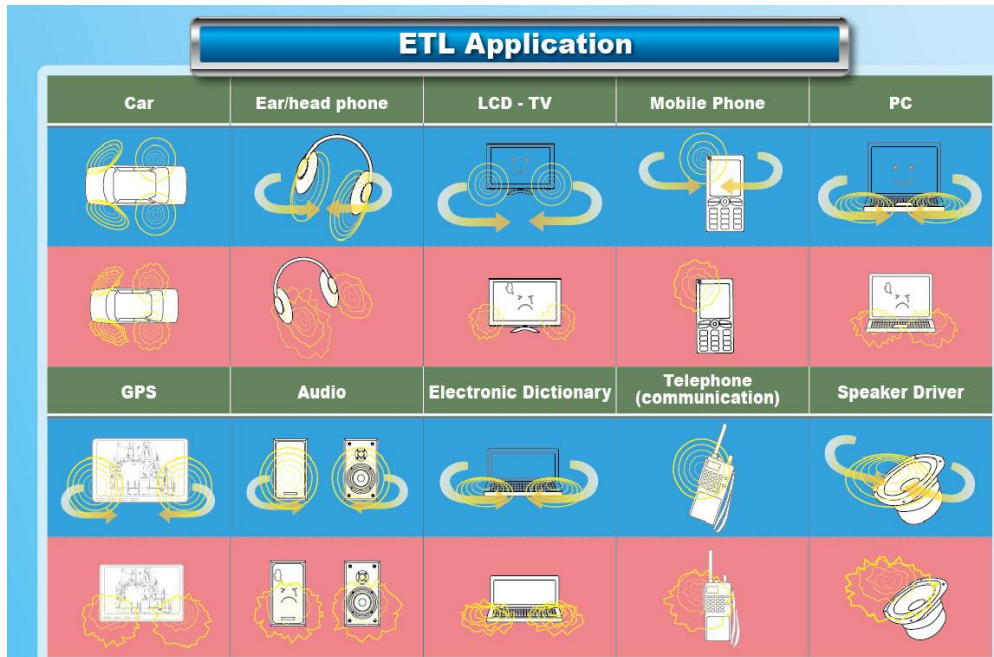
## Only solution: Vary 20,000 volume for 20,000 frequency

ETL keeps volume changeable to 20,000 different volumes to allow 20,000 different lengths of wave to adapt. Any frequency generated by the cone paper enters ETL and is dissipated by ETL.

Hence it is very stable behind the cone paper and keeps the cone paper in piston movement. (please refer to the below graph)

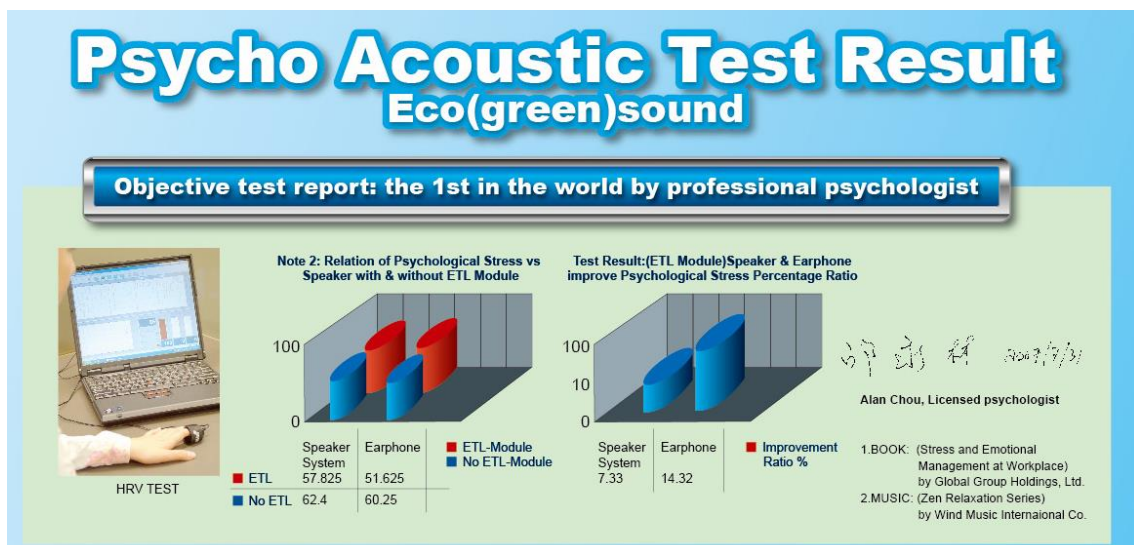


## Application of HDSS ( ETL) technology



## World 1<sup>st</sup> psychological sound test by HRV

Stress is reduced by life sound test via HDSS sound technology. Earphone reduce 14.32% , while speaker reduce 7.33%.



## **To be better and to be different from your competitors**

HDSS is the best tool for your own product to be better and to be different from competitors.

Please contact with us without hesitate

## **HDSS principle patent( US, Japan,Russia, Australia)**

**Pending: China**

**Patent owner: TBI Audio ( US: Atlanta , Georgia , USA)**

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