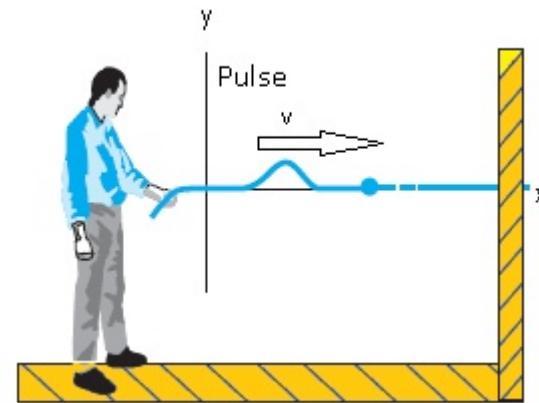
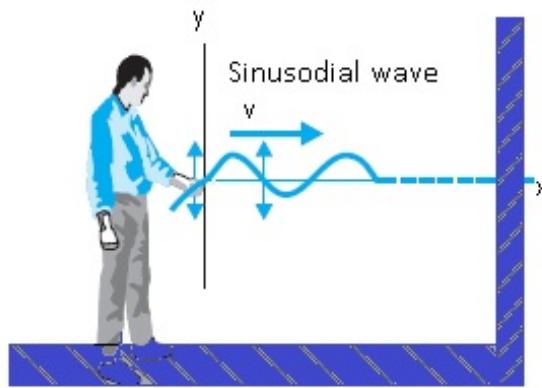


# **PENGANTAR SISTEM AUDIO**

**getaran yang merambat (gelombang) melalui media transmisi  
seperti udara (gas), cairan atau padat**

**#Bunyi/Suara**



gelombang mentransfer **ENERGI** tanpa mentransfer **MASSA**

## Decibels (dB)

$$L = 10 \cdot \log\left(\frac{I}{I_o}\right)$$

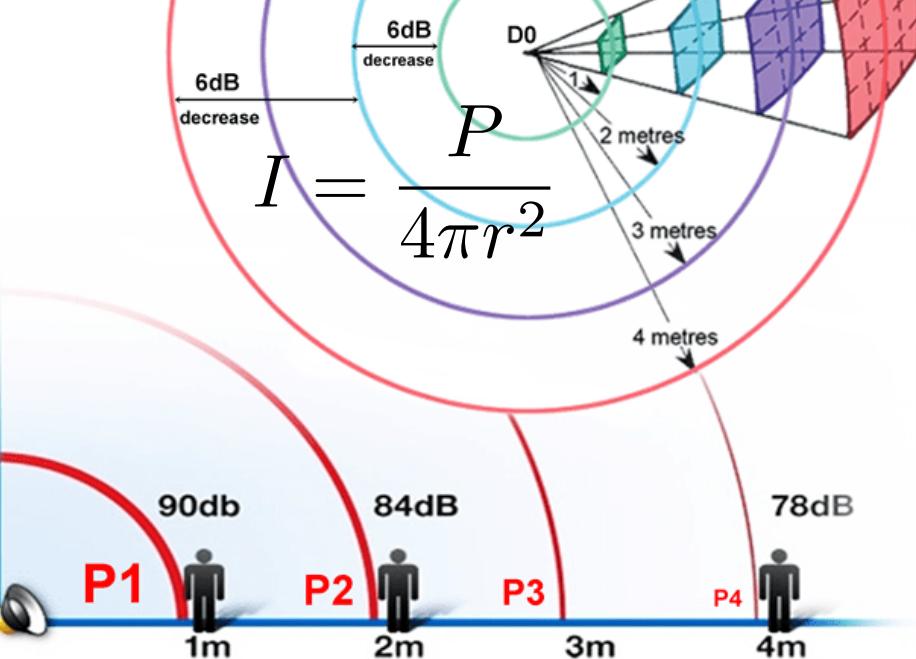
$$L_2 = L_1 + 20 \cdot \log\left(\frac{r_1}{r_2}\right)$$

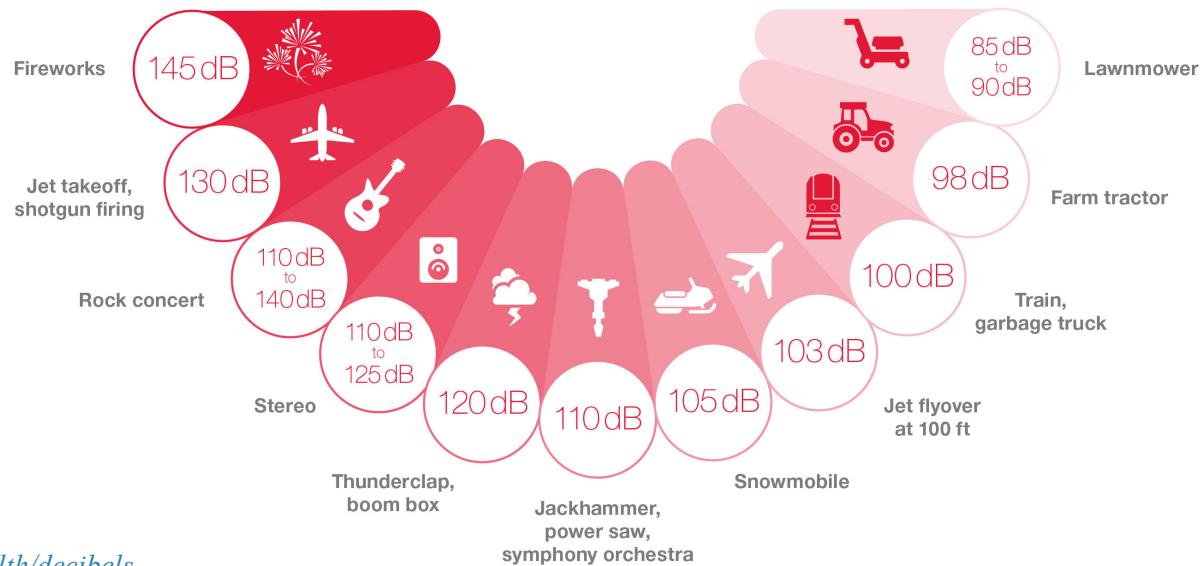
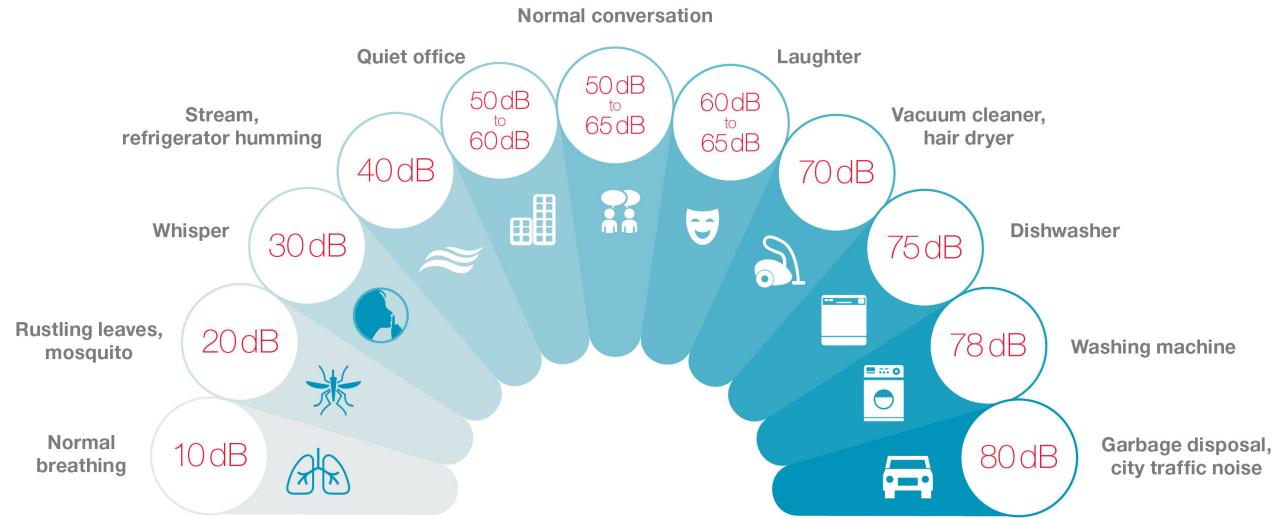
threshold of hearing

$$I_o = 10^{-12} \text{ W/m}^2$$

## Inverse Square Law:

Every doubling of the distance from the sound source in a free field situation, the sound intensity will diminish by 6 decibels





#getaran  
senar gitar



bunyi yang dihasilkan  
#gelombang

# SEJARAH

<https://www.freepik.com/photos/music>  
Music photo created by *pvproductions*

more power

[https://en.wikipedia.org/wiki/File:Victor\\_V\\_Phonograph.jpg](https://en.wikipedia.org/wiki/File:Victor_V_Phonograph.jpg)

<https://www.nytimes.com/2009/06/25/science/25flute.html>



<http://www.chappell-bond-st.co.uk/musical-instruments-history/>



prasejarah

abad pertengahan

1900s

2000s



## THE 3 WORLDS (DOMAINS) OF SOUND

<http://clipart-library.com/clipart/1071543.htm>

<https://cf.shopee.co.id/file/35a3b44200634b0d0237171e8cbb830d>



1

## Domain Akustik



<http://clipart-library.com/clipart/1181759.htm>



<https://www.amazon.com/Merano-ADP-65-Silver-Trumpet-Mouth/dp/B00AWVFC28>



<https://pianopiano.com/shop/48-hardman-petite-grand-series-spade-leg/>



<https://en.wikipedia.org/wiki/File:VictorVPhonograph.jpg>



## Domain Analog

2

<https://www.tradeindia.com/products/music-audio-blank-cassette-tape-6352689.html>



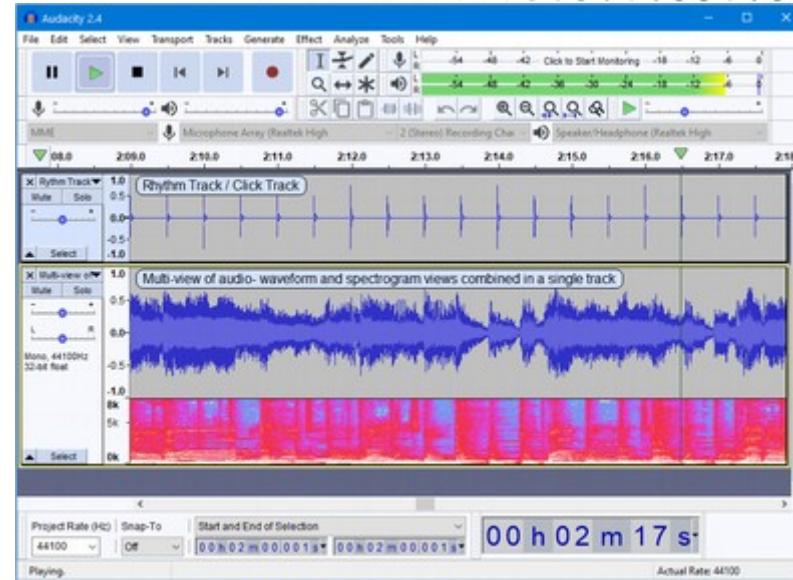
<https://www.evilmadscientist.com/2013/video-disc/>



[https://upload.wikimedia.org/wikipedia/commons/0/01/Gibson\\_Les\\_Paul\\_54\\_Custom.jpg](https://upload.wikimedia.org/wikipedia/commons/0/01/Gibson_Les_Paul_54_Custom.jpg)

# 3

## Domain Digital



[https://en.wikipedia.org/wiki/Audacity\\_\(audio\\_editor\)](https://en.wikipedia.org/wiki/Audacity_(audio_editor))

<https://www.freepik.com/vectors/technology> Technology vector created by starline - www.freepik.com

**berpindah dari satu domain ke domain yang lain**

# akustik

getaran yang merambat di medium (udara)

<https://freepikpsd.com/angklung-png-transparent-images/507453/>



# analog

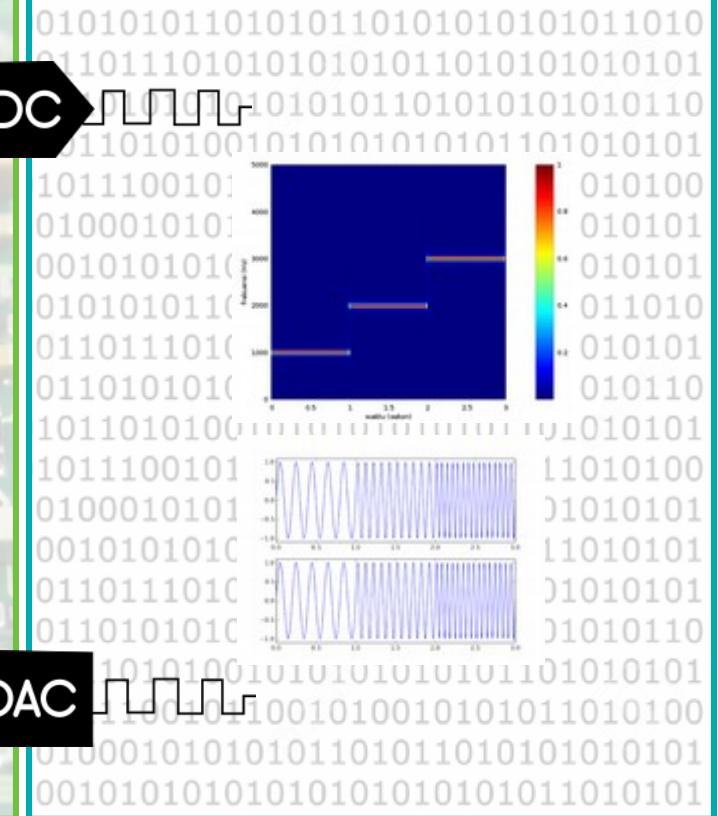
gelombang listrik

[https://pngimg.com/uploads/microphone/microphone\\_PNG7918.png](https://pngimg.com/uploads/microphone/microphone_PNG7918.png)



# digital

numbers

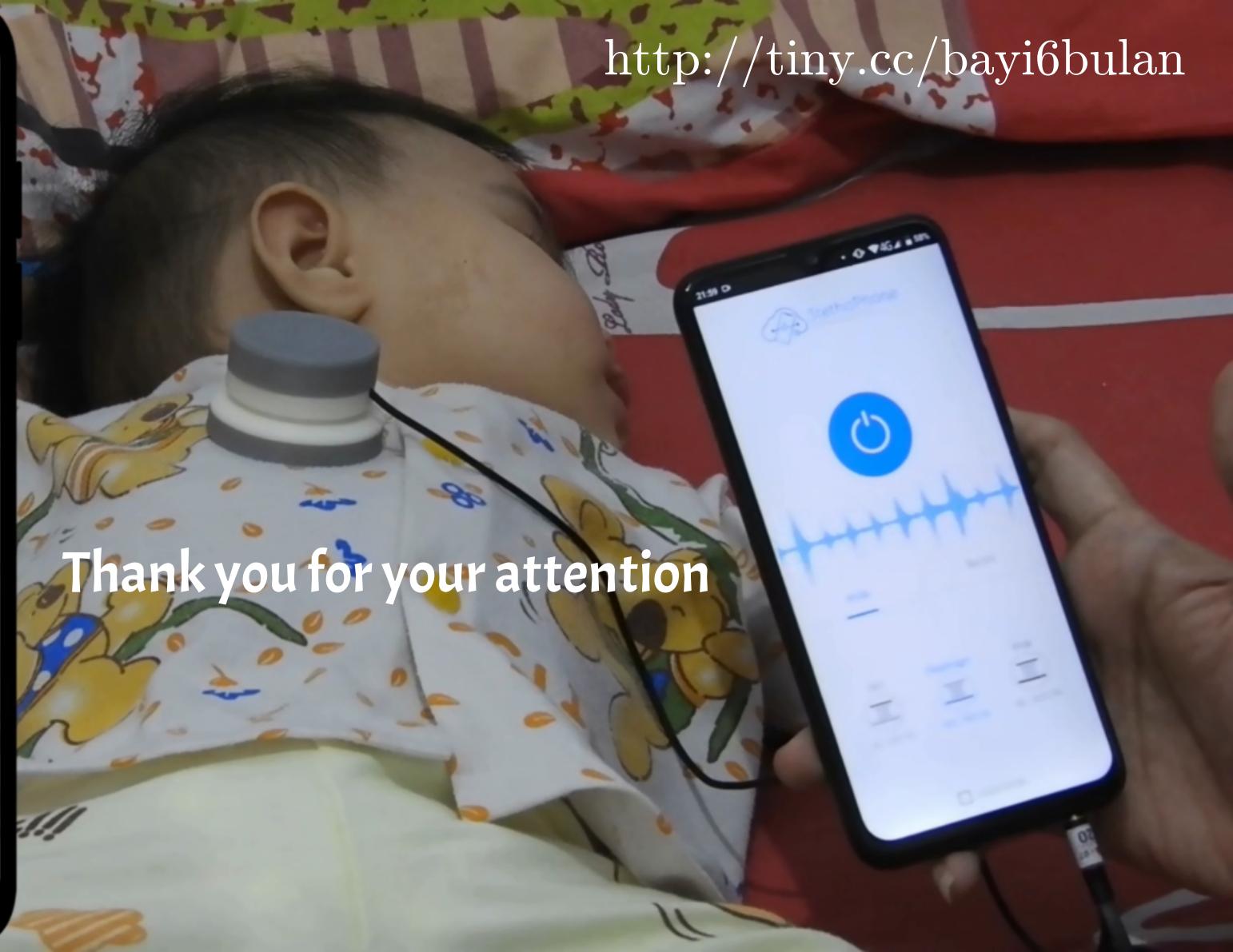


<https://www.signia-hearing.com/blog/what-you-need-to-know-about-hearing-loss/>

<https://punto.themerex.net/wp-content/uploads/2014/09/32.png>

21:59

4G 58%



<http://tiny.cc/bayi6bulan>