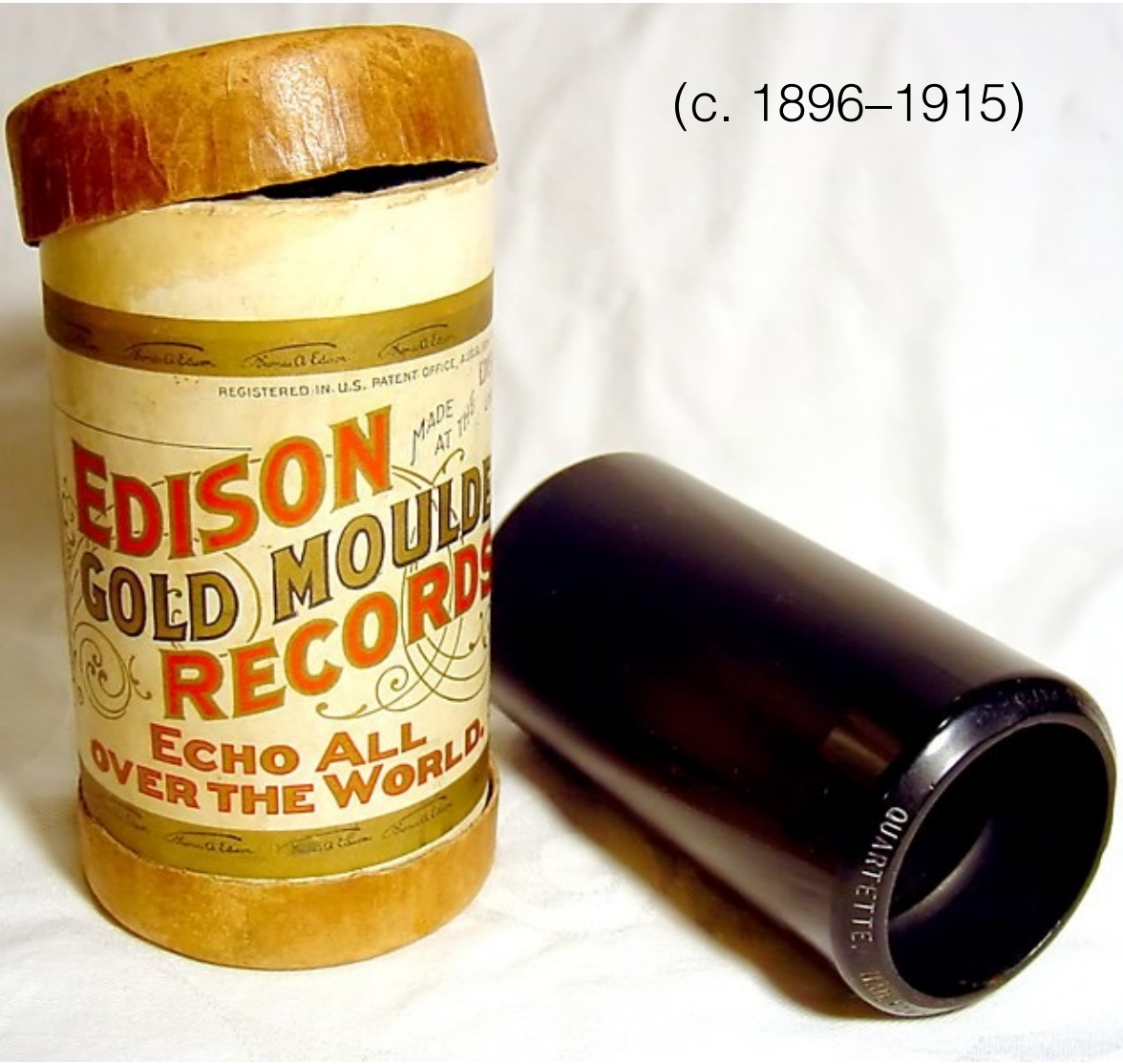
(Quick and Dirty) Timeline of Recording History

(c. 1896–1915)


REGISTERED IN U.S. PATENT OFFICE
EDISON
GOLD MOULDED
RECORDS
ECHO ALL
OVER THE WORLD.
QUARTETTE.

https://www.youtube.com/watch?v=aeXaFAuhLfE

Composing with Tape / Musique Concrete

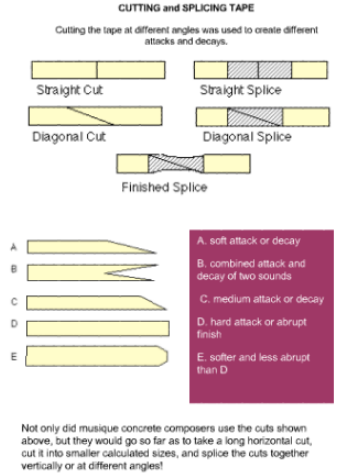
Musique Concrete

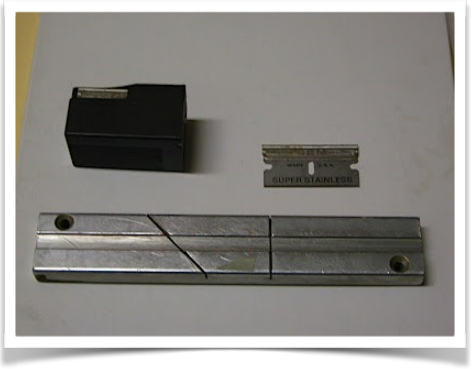
Pierre Schaffer

5 Etudes de bruits
No. 1. *Etude aux chemins de fer*

http://rpi.naxosmusiclibrary.com/catalogue/item.asp?cid=INAG6027-29

Composing with Tape / Musique Concrete





Soundscape Composition

Presque Rien

by Luc Ferrari (1929 - 2005)

http://rpi.naxosmusiclibrary.com/catalogue/item.asp?cid=INAG6017-26

Field Recording

www.crkasprzyk.com
https://soundcloud.com/crkasprzyk

Bit Depth

Signal-to-noise ratio and resolution of bit depths

# bits	SNR	Possible integer values (per sample)	Base ten signed range (per sample)
4	24.08 dB	16	–8 to +7
8	48.16 dB	256	–128 to +127
11	66.22 dB	2048	–1024 to +1023
16	96.33 dB	65,536	–32,768 to +32,767
20	120.41 dB	1,048,576	–524,288 to +524,287
24	144.49 dB	16,777,216	–8,388,608 to +8,388,607
32	192.66 dB	4,294,967,296	–2,147,483,648 to +2,147,483,647
48	288.99 dB	281,474,976,710,656	–140,737,488,355,328 to +140,737,488,355,327
64	385.32 dB	18,446,744,073,709,551,616	–9,223,372,036,854,775,808 to +9,223,372,036,854,775,807

SNR (ratio of signal to background noise)

(telephone)	8 bit	50 db
(CD Audio)	16 bit	98 db
	32 bit	122 db

1:1 means same amount of signal and noise

Recording Format: Wav, AIFF, MP3, OGG, FLAC

lossless/lossy compression

Bit Depth: 16, 24, 32

Sample Rate: 44.1k, 48k

filters: natural, digital, on recording vs. playback

bits SNR dB

Microphones

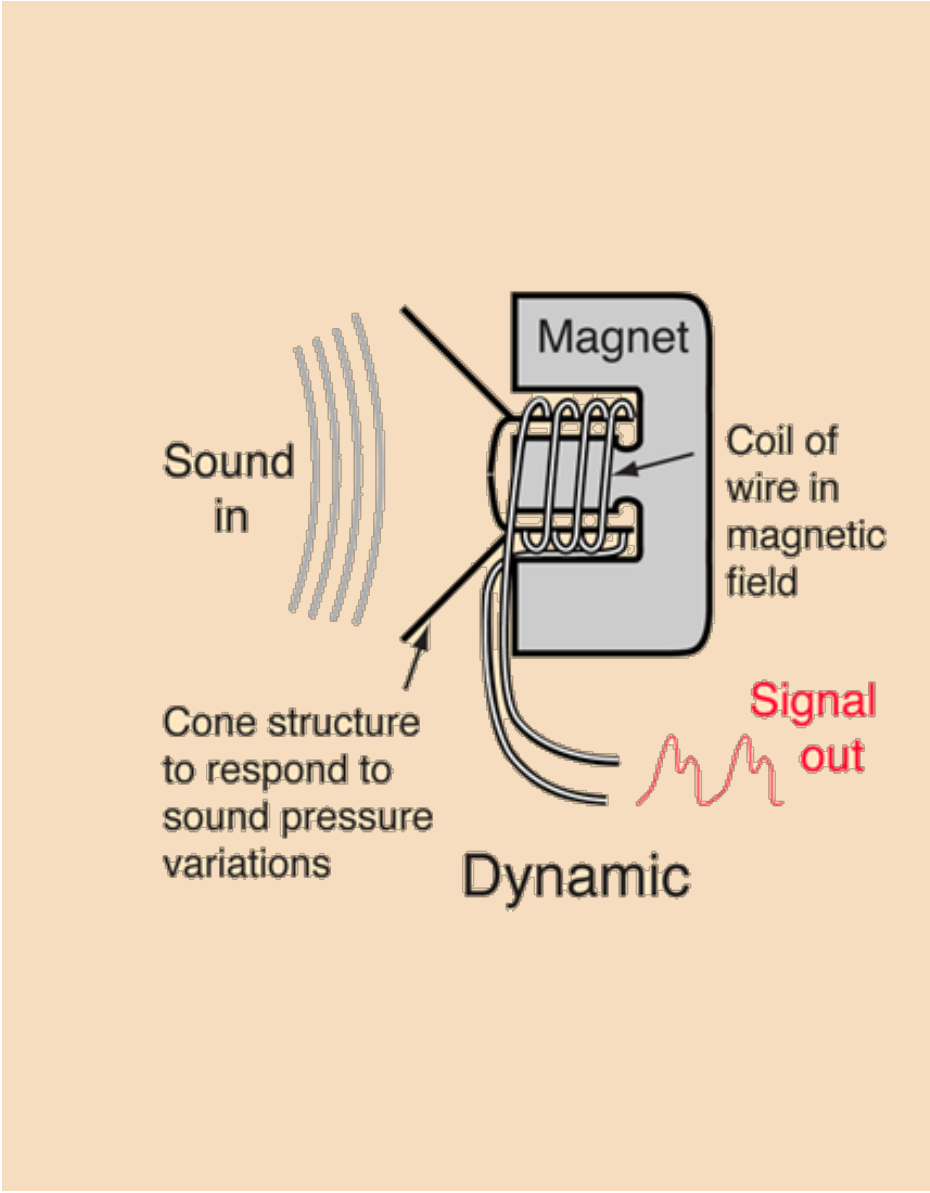
Microphones are transducers which detect sound signals and produce an electrical image of the sound, i.e., they produce a voltage or a current which is proportional to the sound signal.

Condenser:	greater frequency/transient response louder output phantom power more fragile
Dynamic:	more limited frequency/transient response softer output no phantom power can take a beating

Microphones

Dynamic: Thin diaphragm attached to a coil of wire arranged about a permanent magnet.

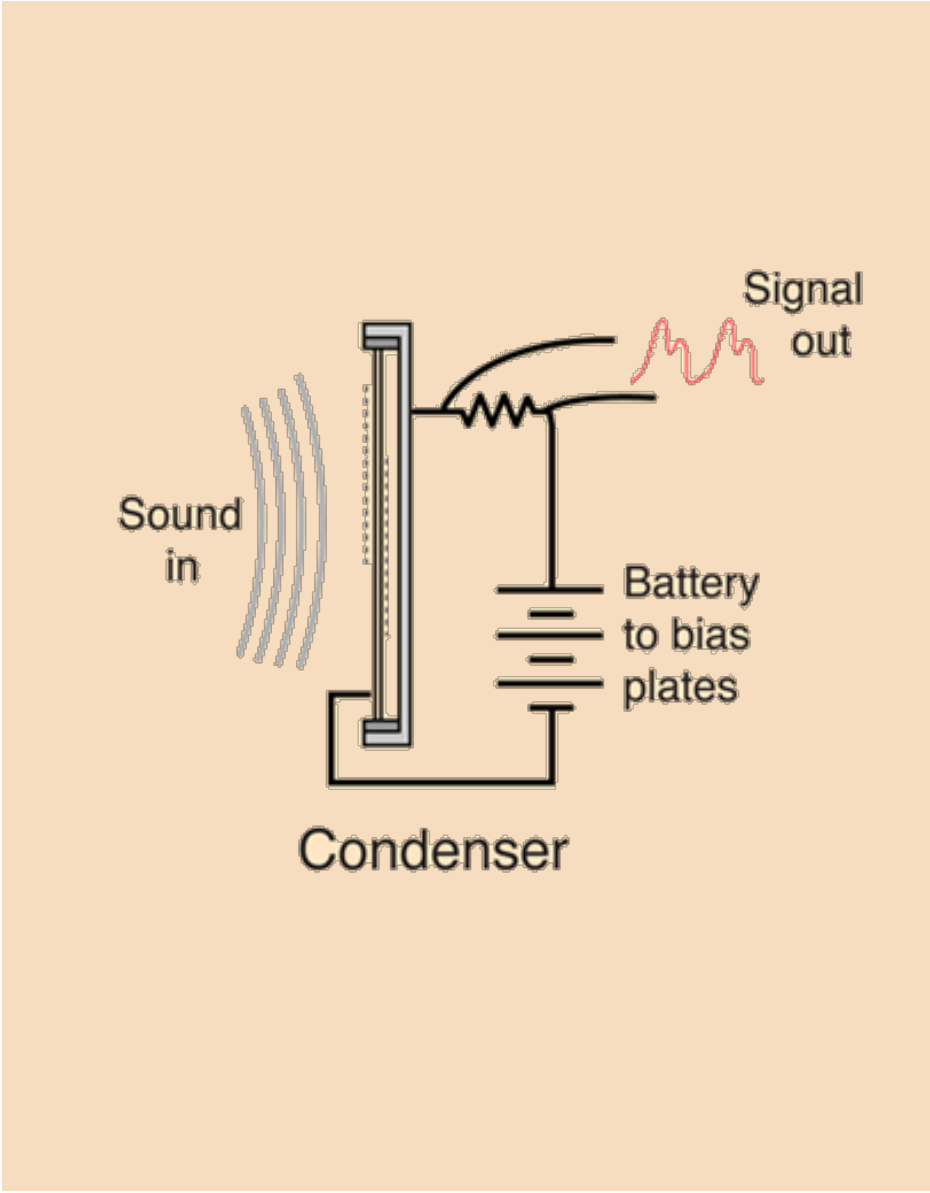
Sound generates variations in air pressure on the diaphragm will cause the coil to generate a minute electric current which then requires amplification.



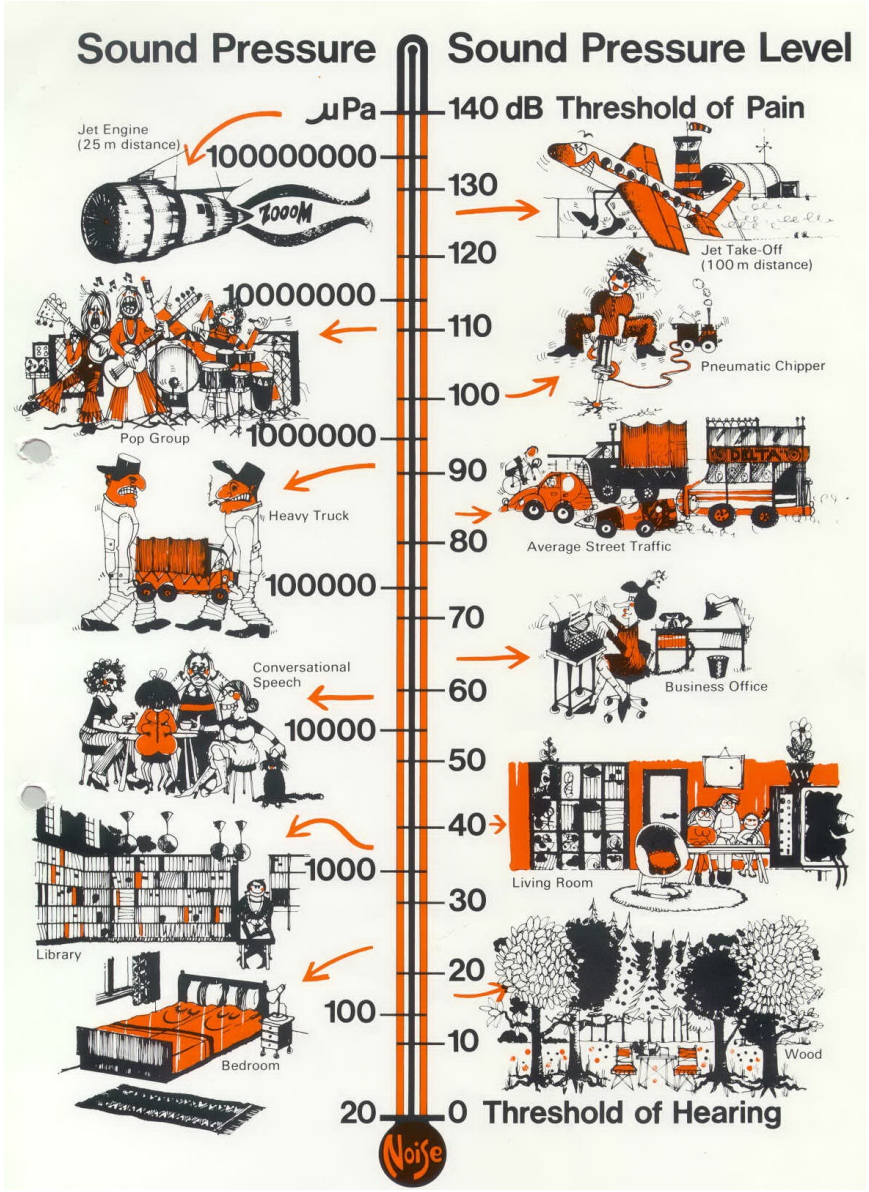
Microphones

Condenser: Thin diaphragm attached to a coil of wire arranged about a permanent magnet.

Sound pressure changes the spacing between a thin metallic membrane and the stationary back plate. The plates are charged to a total charge



Decibels (dB)


Sound Pressure
Sound Pressure Level
μPa
140 dB Threshold of Pain
Jet Engine
(25 m distance)
100000000
130
Jet Take-Off
(100 m distance)
120
10000000
110
Pneumatic Chipper
100
Pop Group
1000000
90
Heavy Truck
80
Average Street Traffic
100000
70
Business Office
Conversational
Speech
60
10000
50
40
Living Room
1000
30
Library
20
100
10
Bedroom
Wood
20
0 Threshold of Hearing
Noise

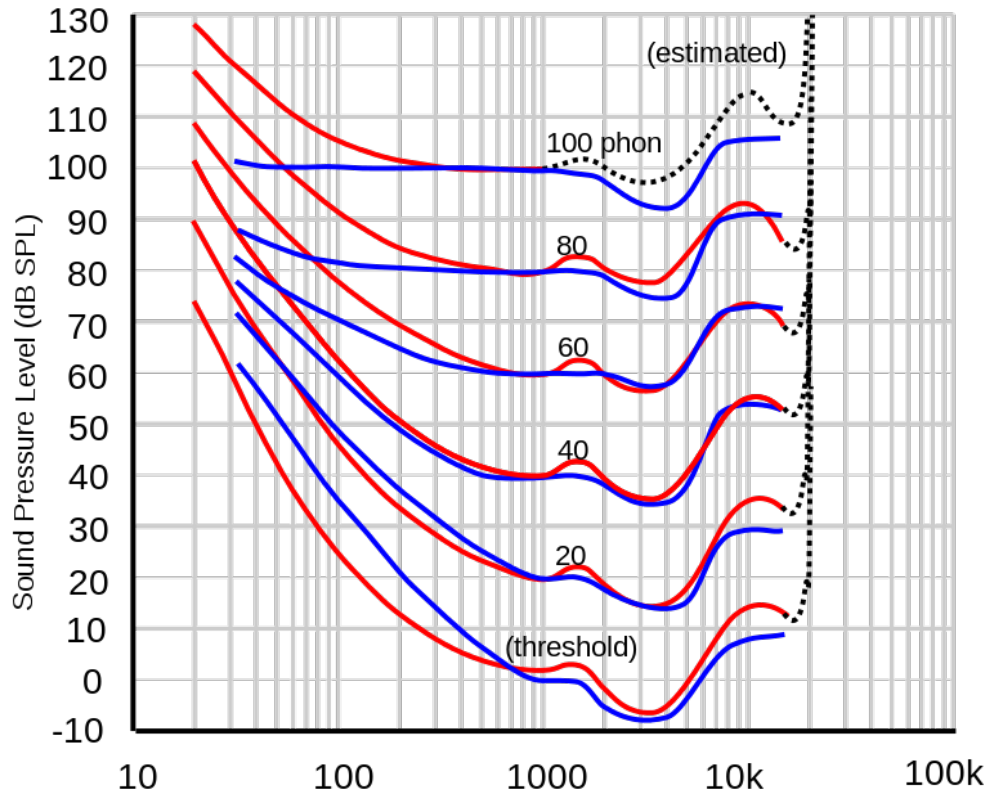
Decibels (dB)

3 dB = twice the power
(Power respectively intensity - mostly calculated)

6 dB = twice the amplitude
(Voltage respectively sound pressure -
mostly measured)

10 dB = twice the perceived volume
(Loudness nearly sensed psychoacoustics)

Loudness: Fletcher-Munson Curves



Equal-loudness contours (red) (from ISO 226:2003 revision)
Fletcher–Munson curves shown (blue) for comparison