

Chapter 15 - Sound

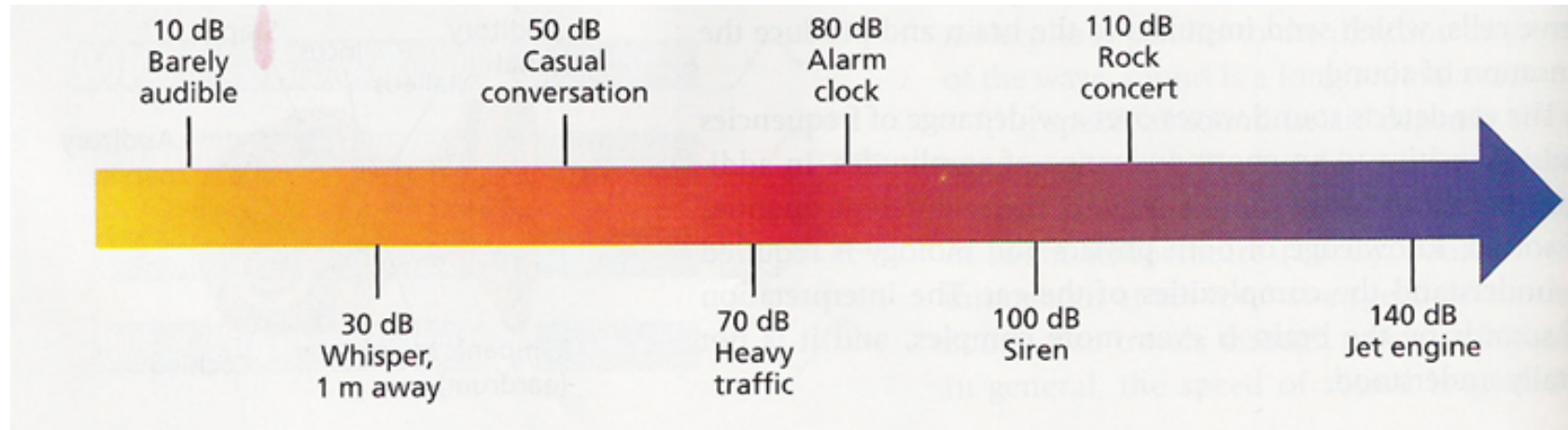
Sound - Longitudinal wave

Speed in air 331 m/s at 0 C

Human Hearing range (frequency)

20 Hz - 20000 Hz

Volume (Amplitude) of sound is measured on the decibel scale.



The human ear is extremely sensitive to changes in pressure at audio frequencies. The decibel scale is logarithmic. A change of 10 dB is judged by most people to be twice as loud.

Table 15-1	
Speed of Sound in Various Media	
Medium	m/s
Air (0°)	331
Air (20°)	343
Helium (0°)	972
Water (25°)	1493
Seawater (25°)	1533
Copper (25°)	3560
Iron (25°)	5130

Doppler Effect

Change in the observed frequency when there is relative motion between the source and the observer.

(Actual frequency of the source does not change.)

Animation: <http://ionaphysics.org/ntujava/Doppler/Doppler.html>

Sound <http://ionaphysics.org/lab/DopplerDemo.htm>