





























- More precisely, we call:
 - Fundamental frequency: the lowest resonant frequency of a vibrating object. It is usually what is perceived as being the pitch. For a periodic waveform, it is its frequency.
 - Harmonics: multiple of the fundamental frequency. Most vibrating objects have more than one resonant frequency and those used in musical instruments typically vibrate at harmonics of the fundamental
 - Overtones: the term overtone is used to refer to any resonant frequency above the fundamental frequency - an overtone may or may not be a harmonic

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- Formant: region of concentration of energy





































Audio File Format

• Lossy compression formats:

- MP3 (MPEG I, layer 3): Moving Pictures Experts Group compressed audio format that can compress audio by a factor of 10:1 with little degradation in quality.
- wma the popular Windows Media Audio format owned by Microsoft. Designed with Digital Rights Management (DRM) abilities for copy protection.
- aac the Advanced Audio Coding format is based on the MPEG4 audio standard owned by Dolby. A copyprotected version of this format has been developed by Apple for use in music downloaded from their iTunes Music Store.
- Ogg Vorbis: compressed audio format that designed to be a free alternative to MP3 files. Ogg Vorbis files are not as common, but they are about the same size as MP3 with better quality and no patent restrictions.

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IAT-380 Sound Design



Basics Definitions

- Electrical current is:
 - The movement of electrons in a conductive medium
 - Measured in Ampere (6*10¹⁸ electrons per sec)
 - Induced by potential differences: tension or voltage
 - A continuous phenomenon
- Magnetic induction is:
 - The creation of an electric current when a conductive metal is moving inside a magnetic field.
- We call transducer any device that transforms one type of energy into another:
 - Microphones are a type of transducer used to transform acoustic energy into electric current.
 - Loudspeakers are transforming electric current into acoustic energy

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