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Audio signal

An **audio signal** is a representation of sound, typically as an electrical voltage for analog signals and a binary number for digital signals. Audio signals have frequencies in the audio frequency range of roughly 20 to 20,000 Hz (the limits of human hearing). Audio signals may be synthesized directly, or may originate at a transducer such as a microphone, musical instrument pickup, phonograph cartridge, or tape head. Loudspeakers or headphones convert an electrical audio signal into sound.

Digital audio systems represent audio signals in a variety of digital formats.[1]

An **audio channel** or **audio track** is an audio signal communications channel in a storage device or mixing console, used in operations such as multi-track recording and sound reinforcement.

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Signal flow

Signal flow is the path an audio signal will take from source to the speaker or recording device. Signal flow may be short and simple as in a home audio system or long and convoluted in a recording studio and larger sound reinforcement system as the signal may pass through many sections of a large console, external audio equipment, and even different rooms.

Parameters

Audio signals may be characterized by parameters such as their bandwidth, nominal level, power level in decibels (dB), and voltage level. The relation between power and voltage is determined by the impedance of the signal path, which may be single-ended or balanced.

Audio signals have somewhat standardized levels depending on application. Outputs of professional mixing consoles are most commonly at line level. Consumer audio equipment will also output at a lower line level. Microphones generally output at an even lower level, commonly referred to a *mic level.*

Digital equivalent

As much of the older analog audio equipment has been emulated in digital form, usually through the development of audio plug-ins for digital audio workstation (DAW) software, the path of digital information through the DAW (i.e. from an audio track through a plug-in and out a hardware output) is also called an *audio signal* or *signal flow.*

A digital audio signal being sent through wire can use several formats including optical (ADAT, TDIF), coaxial (S/PDIF), XLR (AES/EBU), and Ethernet.

See also

- Analog recording
- Audio editing software
- Audio Engineering Society
- Audio signal processing
- Balanced audio
- Communications
- Digital recording
- Equalization (audio)
- Octophonic sound
- Professional audio
- Psychoacoustics
- Quadraphonic sound
- Sound editing
- Sound engineer
- Sound intensity
- Sound recording and reproduction
- Stereophonic sound
- Surround sound

References

1. Hodgson, Jay (2010). *Understanding Records*, p.1. ISBN 978-1-4411-5607-5

External links

- Media related to Audio signal at Wikimedia Commons