

THE
DICTIONARY
OF MULTIMEDIA

TERMS & ACRONYMS

FOURTH EDITION

BRAD HANSEN

FRANKLIN, BEEDLE & ASSOCIATES, INC.
8536 SW ST. HELENS DRIVE, SUITE D
WILSONVILLE, OREGON 97070
503/682-7668
WWW.FBEEDLE.COM

Dedication

For my daughter, Claire.

—B.H.

President and Publisher	Jim Leisy (jimleisy@fbeedle.com)
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8536 SW St. Helens Drive, Suite D

Wilsonville, Oregon 97070

www.fbeedle.com

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Library of Congress Cataloging-in-Publication Data is available from the publisher.

ISBN (hardback): 1-887902-35-X

ISBN (paperback): 1-887902-73-2

determine decibels, where x and y are the different signal levels. Being a ratio, decibels have no units, but they are relative to a 0 dB reference point. To distinguish between reference points, a suffix letter is added as follows:

- **0 dBu** An abbreviation for the official dB (0.775 volts), a voltage reference point equal to 0.775 volts rms. This reference was first labeled dBv, but was often confused with dBV. It was changed to dBu; the “u” stands for *unterminated*.
- **+4 dBu** The standard professional audio voltage reference level, equal to 1.23 volts rms.
- **0 dBV** A unit of voltage measurement relative to 1.0 volts, not .775 volts. It is a voltage reference point equal to 1.0 volts rms.
- **-10 dBV** The standard voltage reference level for consumer and some professional audio gear, equal to 0.316 volts rms. The presence of RCA connectors is a good indicator that a piece of gear operates at -10 dBV levels.
- **0 dBm** An abbreviation for the official dB (1 milliwatt). To convert a dBm value into an equivalent voltage level, you must specify the impedance. For example, converting 0 dBm into a 600-ohm load yields an equivalent voltage level of 0.775 volts, the reference point 0 dBu. When the resistance is changed, as in the conversion of 0 dBm into a 50-ohm load, an equivalent voltage of 0.224 volts is yielded. The reference levels of +4 dBu or -10 dBV are the preferred units, because most engineers are concerned with voltage levels rather than power levels. The convention of using a reference level of 0 dBm is obsolete.
- **0 dBFS** A digital audio reference level where FS refers to “full scale.” It is used in specifying A/D and D/A audio data converters. “Full scale” refers to the maximum peak voltage level possible before digital

clipping, or overload of the data converter. The full scale value is fixed internally by the data converter and varies between models.

decimal digit (n.) Any number in the base-10 system, 0–9.

decimate (v.) To discard portions of a signal in order to reduce the amount of information to be encoded or compressed. Lossy compression algorithms ordinarily decimate while subsampling.

decoder (n.) Any hardware or software system that translates data streams into video or audio information.

decompression (n.) The process of restoring compressed data to its original condition.

decrement (v.) To decrease one step at a time.

Decrypt CSS (DeCSS) (n.) A program released in 1999 that decrypts a CSS-encrypted DVD movie, so that the movie may be played on any DVD player. DeCSS renders lower quality in the audio and video tracks and eliminates interactive controls. DeCSS is a controversial program, because it allows piracy of copyright-protected content.

decryption (n.) A procedure used in cryptography to translate encrypted data into readable text.

DeCSS See *Decrypt CSS*.

dedicated (adj.) Describes any computing system that performs one function exclusively.

dedicated line (n.) A telephone line leased to connect two users permanently. The line could be a voice-grade connection over ordinary pub-

lic switched circuits, or it could be specified for encoded digital signals at faster rates. It is different from a dialup connection, which is only opened when either end requests service.

de-emphasis See *pre-emphasis*.

de-esser (n.) An audio signal compressor that operates at frequencies above 3 kHz to reduce the effect of sibilant vocal noises with high frequencies, such as the that produced by “s.”

DEF See *Data Exchange Format*.

default (n.) The standard setting of an optional parameter. Factory defaults are the original settings for most equipment.

Defense Advanced Research Projects Agency (DARPA) (n.) A U.S. government agency that funded research for the ARPANET and the Internet.

De Forest, Lee (1873–1961) Regarded as the father of radio, he was an American electrical engineer who patented the triode electron tube in 1907, making possible the amplification and detection of radio waves. He was one of the first people to broadcast radio news.

defragment (defrag) (v.) To place all data on a hard disk in contiguous sectors, avoiding gaps between parts of a file or pieces of files spread geographically on the disk. When audio or video is digitized directly to a disk, the disk must be defragmented so that a continuous stream of data may be recorded on it.

degauss (v.) To remove a magnetic field.

deinterlace (v.) To remove the interlacing artifacts found in digital video converted to a noninterlaced (progressive scan) format from

video that originally contained two fields per frame.

DEK See *data encryption key*.

delete (v.) To make a file inaccessible. Data in the file allocation table (FAT) is all that is usually removed. The file’s contents still exist on the storage medium and can often be recovered.

delimiter (n.) Any character or symbol that marks the beginning or end of a data segment. The angle brackets that surround HTML tags (<...>) are delimiters.

delivery system (n.) Combined hardware and software used to present or play back media, whether they be audio, video, text, images, or a combination of data types in an interactive environment.

delta (n.) A small quantitative change; the difference between two states.

delta frame (n.) In compressed video, a frame that contains only the differences between the current frame and the previous frame. It does not contain information that fully defines the image. Delta frames are created by codecs that use temporal compression. Delta frames are also called *difference frames*.

delta modulation (n.) A process for converting analog audio to a digital form, similar to pulse code modulation (PCM). Delta modulation is the sampling of an audio signal at 32 Kbps at 1-bit resolution, as opposed to creating eight 8-bit samples per second in PCM at the rate of 64 Kbps.

delta YUV (DYUV) (n.) A digital video compression format that measures the differences

