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## Desktop Video: Glossary of Terms (D-F) (8/93)

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TOPIC -----

This article describes desktop video terminology, words "D" through "F".

DISCUSSION -----

### Decoder

A device used to recover the component signals from a composite (encoded) source. Decoders are used in displays and in various processing hardware where component signals are required from a composite source.

### Delay line

A device designed to delay the video signal for a specific length of time. Required when switching between different types of devices or cameras with significantly different cable lengths.

### Demodulate

To recover the information being transmitted by a modulated signal. For example, a conventional TV receiver demodulates an incoming broadcast signal to convert it into the luminance and chrominance information displayed by the CRT and the sound emitted by the speaker. Compare modulate.

### Demodulator

A device which strip the video and audio signals from the carrier frequency.

### Device interface

A converter box which separates the RGB and sync signals in order to display computer graphics on an RGB video monitor. Vendors include Covid and Extron.

### Differential Gain (DG) and Differential Phase (DP)

The distortion characteristics of the chrominance signal expressed as a

numerical value which indicates to what degree the amplitude (differential gain as a percentage) and phase (differential phase in degrees) are distorted from the beginning and end of one horizontal scanning line.

#### Digital audio workstations

Computer-based systems for editing and manipulating digital audio. The audio can be synchronized with video for video post-production applications. Some common systems based on the Macintosh include Dyaxis, Pro Tools, Synclavier, and Dawn.

#### Digital disk recorder

A recorder much like a videotape recorder which uses large digital disk memories instead of tape. They can record and play back in single frame steps (with no pre-roll, since there is no tape involved), at variable speeds or at 30 fps. Digital disk recorders are available as both component and composite machines. Very, very, expensive. Digital disk recorders can usually mix an incoming video signal with a stored one and record the net result simultaneously. Since everything is digital, this mix can be performed repeatedly, producing layer upon layer of moving images.

#### Digital video

A video signal represented by binary numbers describing a finite set of colors and luminance levels. In accordance with "CCIR 601," the international digital video standard for sampling, the conversion from analog to digital suffers virtually no loss.

With current technology, the cost of using digital video to represent the range of levels and colors easily handled by analog videotape is prohibitive. Digital video requires more bandwidth than analog video to produce the same results, unless fancy compression techniques are used. As digital memory capacity and processing speeds become more economical, digital video will eclipse analog video. Standards such as QuickTime, DVI, MPEG, and JPEG for video make digital manipulation of video information possible on today's personal computers.

Note: consumer "digital" televisions and camcorders use the term to refer to the use of digital frame buffers for effects or signal processing. The output of these buffers is still converted back into analog signals for display and storage.

#### Digital Video Effects (DVEs)

A real-time frame buffer that can zoom in and out, reposition, and freeze frame in real time. Some can also warp video frames into trapezoids, cylinders, and spheres to create a variety of special effects. Common trade names include ADO, Encore, Mirage, and Pinnacle.

#### DIN

Acronym for Deutsche Industrie Normal, a European standards organization.

#### Dirty list (dirty EDL)

An EDL containing overlapping or redundant edits.  
See and compare clean list.

Dither pattern

The matrix of color or gray-scale values used to represent colors gray shades in a display system with a limited color palette.

Dithering

A technique for alternating the values of adjacent dots or pixels to create the effect of intermediate values. In printing color or displaying color on a computer screen, the technique of making adjacent dots or pixels different colors to give the illusion of a third color. For example, a printed field of alternating cyan and yellow dots appears to be green. Dithering can give the effect of shades of gray on a black-and-white display, or more colors on a color display.

Dot crawl

See cross luminance.

Dot pitch

A measure of the distance between dots on the screen. The closer the dots, the sharper and clearer the image.

Dot space

The horizontal distance between dot centers. This distance depends on the character pitch in effect.

Drop-out

Missing information from magnetic tape caused by dust, lack of oxide, etc. Especially noticeable with a format such as Hi8 which packs a tremendous amount of information onto a tiny and fragile tape.

Dubbing

Making a copy from one recording medium to another. See bump-up.

Duration

The length or persistence of a signal in time. Compare frequency.

Dynamic tracking

The ability for a video head to "bend" back and forth enough to find an adjacent track and follow it. This allows true freeze-frame rather than only freeze-field display. It also allows for variable speed playback, including playing in reverse, which otherwise is not possible.

EBU European Broadcasting Union.

Edit Decision Lists (EDL)

The Edit Decision List, or EDL, is the data controlling the editing computer during an on-line session. It lists "in-points" and "out-points" for both the source playback decks and the record deck. These "events" can be for video, audio, or both. The EDL may control all sources, various effects machines (for fades and dissolves, for example) and the record deck. An EDL may be created manually after the off-line editing is complete or it may be generated by the edit controller used in more sophisticated

off-line systems. Computer based editing systems including the Digital F/X and Avid Media Composer will automatically generate an EDL. See off-line, on-line.

#### Effects

Effects involve any manipulation or processing of the video or audio signal. Though they are often used for gratuitous gimmickry, they can also be used for valid functional and aesthetic design purposes. Video effects seem to change annually, and are heavily technology-driven. Since they sometimes cannot be simulated in an off-line environment, the best way to prepare to use them is to look over the free demos available from various video facilities and vendors. Off-line systems like the Avid Media Composer allow you to preview most of the standard video effects.

EIA Electronic Industries Association.

The organization which determines recommended audio and video standards in the United States.

EIA sync see RS-170.

#### Encoded video

The encoded video signal is formed by starting with an RGB signal from the color television camera. This RGB signal is then processed through an encoder, known as the I and Q encoder, which converts the RGB into a composite NTSC signal. The encoded signal has all of the elements of the composite video signal: sync, burst, chroma, and luminance.

#### Encoder

A device which transforms NTSC timed red, green and blue signals into a single NTSC composite signal combining luminance, chrominance, and sync information. Compare decoder.

ENG Acronym for Electronic News Gathering.

#### Equalizer

(1) Equipment designed to compensate for loss and delay frequency effects within a system. (2) A component, or circuit, which allows for the adjustment of a signal across a given band

FCC Federal Communications Commission.

A federal bureau that regulates radio and television broadcast standards. FCC regulations carry the force of law.

#### Field

One complete vertical scan of the picture, containing 262.5 lines. Two fields make up a complete television frame; the lines of field 1 are vertically interlaced with field 2 for 525 lines of resolution in the NTSC standard.

In many respects, a video signal is best conceptualized as 60 separate images per second. When video is recorded from a video camera, each field represents an independent sample of time. This becomes apparent when video-originated material on a videodisc is still framed, one may see flutter: two different images shot 1/60 of a second apart from each other

on the same screen.

#### Film

While videotape is simple in structure but requires complex machines for recording, film is complex in structure but requires simple recording machines. Film cameras are simple and elegant machines, and when you think about it, the film itself is the recorder.

Film is often used in the production of video for a variety of reasons, including the high image quality of film transferred to video and the ability to record film at any frame rate the camera allows. There are no technical requirements for a particular frame rate as there are with video, each film frame is simply exposed to light, then advanced. Many film cameras have variable frame-rate capabilities—a concept totally foreign to video.

#### Film chain

A device used to transfer film to video. They are still used by some TV stations to broadcast programming distributed on 16mm film. See telecine.

#### First generation

The first time the signal is recorded on tape, that tape is called a first generation tape. Each time the tape is dubbed, a generation is added. See generation loss.

#### Fotovix

The brand-name of a device available from Tamron which provides a relatively inexpensive way to transfer still 35mm film slides and negatives to video.

#### Frame

The total area of the picture which is scanned while the picture signal is not blanked. A complete NTSC TV picture consisting of two fields; a total scanning of all 525 lines of the raster area; occurs every 1/30 of a second. In other countries where PAL and SECAM are the video standard, a frame consists of 625 lines at 25 frame/sec.

#### Frame grabber

A device allowing the real time capture of a single frame of video in a temporary buffer for manipulation or conversion to selected computer file formats. Some frame grabbers have buffers large enough to store several complete frames, allowing rapid capture of a number of images. The distinction between a frame grabber and a digitizer is that a digitizer captures a sequence of complete frames, and therefore must employ some form of compression and/or acceleration in order to operate in real-time.

#### Frames

NTSC video plays at 30 frames per second, and each video frame consists of two half-frames called fields. A field consists of every other horizontal line. When the video image is created on a TV set, the little scanning dot of light first scans across the topmost horizontal line, line 1. Rather than scanning along line 2 next, it scans line 3, then line 5, and so on. When it gets to the bottom (in half of the 1/30 second frame time), it

begins at the top again but on line 2, then line 4, and so on. This technique is called interlace, and it was invented because most people see a flickering image if television is scanned sequentially at 30 fps.

#### Frequency

The number of complete cycles transmitted per second. Frequency is usually expressed in hertz (cycles per second), kilohertz (kilocycles per second), or megahertz (megacycles per second). In acoustics, frequency of vibration determines musical pitch. Compare duration.

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