Audiovisual Archiving Terminology

A

Amplitude
: The magnitude of the difference between a signal's extreme values. (See also *Signal*)

Analog
: Representing information using a continuously variable quantity such as voltage, density or pressure. (See also *Information*)

Audio
: Sound, especially when recorded, transmitted, or reproduced.

Audiovisual
: Including both visual and auditory elements.

B

Bandwidth
: The capability of a communications channel to carry information. The greater a channel's bandwidth, the more information or data it can carry in a fixed amount of time. (See also *Information* and *Data*)

Binary
: A numbering scheme in which there are only two possible values for each digit, typically 0 or 1. (See also *Bit*)

Bit
: A single binary digit. A basic unit of information expressed as either 0 or 1. (See also *Binary*)

Bit Depth
: The number of bits in a digital measurement or sample. The greater the bit depth, the greater the precision of the sample. An 8-bit sample can express 256 different values, a 10 bit sample 1024 different values, a 16 bit sample 65536 different values, etc. (See also *Bit* and *Sampling*)

B-Y Signal
: One of two color difference signals used in component video systems. The value of the B-Y signal is calculated using a simple algebraic combination of red, green, and blue values. Blue is the most prominent color component of this signal. (See also *Signal*, *Video*, *Color Difference Signals* and *Component Video*)

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C

Checksum

A single digit or number calculated from a block of digits or numbers for the purpose of detecting errors and validating data. Small variations in the block will result in a significantly different checksum value. Comparing checksums calculated on one block of data at two different times can be used to confirm that the block has not changed. Comparing checksums calculated on two blocks of data can be used to confirm that the blocks are identical. (See also *Data*)

Chroma Subsampling

The practice of digitally sampling images using less detail for color information than for black & white information. A three part notation is used to indicate how video is sampled. 4:4:4 indicates that no subsampling is occurring, i.e. chrominance and luminance are sampled with the same detail. The most common sampling mode is indicated by 4:2:2 wherein the horizontal detail of chrominance information is reduced by half. Consumer equipment may use 4:1:1 sampling in which horizontal chrominance detail is reduced to one-quarter, or 4:2:0 in which both horizontal and vertical chrominance detail is reduced by half. (See also *Digital*, *Sampling*, *Information*, *Video*, *Chrominance*, and *Luminance*)

Chrominance (*abv*. Chroma)

The color component of video. In component video, chrominance refers to the two color difference signals. In composite video, chrominance refers to the signal formed by modulating a subcarrier with the two color difference signals. (See also *Video*, *Signal*, *Component Video*, *Color Difference Signals, Composite Video*, *Modulate* and *Subcarrier*)

Color Difference Signals

A set of two signals representing color video information. When accompanied by a third signal representing brightness information (luminance signal), the three signals can be used to specify any shade of color. The values of the color differences signals are calculated using two simple algebraic combinations of red, green, and blue values. In a component video system, the two color difference signals are identified as R-Y and B-Y. (See also *Signal*, *Video, Information*, *Luminance*, *R-Y Signal*, *B-Y Signal* and *Component Video*)

Color-Under

(See *Heterodyne Color*)

Component Video

A system of representing color video information using three distinct values or signals for each point of an image. One signal or value is used to represent brightness, the other two represent color. Together the three signals or values can be used to specify any shade of color. The brightness or luminance is identified as Y. The two color values are identified as R-Y and B-Y or collectively as color difference signals. (See also *Video*, *Information*, *Signal*, *Luminance*, *R-Y Signal*, *B-Y Signal* and *Color Difference Signals*)

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Composite Video

A system of representing color video information using one signal. Brightness is conveyed as a varying voltage. Color saturation is conveyed as the amplitude of a modulated subcarrier. Hue is conveyed as a phase shift of the modulated subcarrier. (See also *Video*, *Information*, *Signal*, *Amplitude*, *Phase Shift*, *Modulate* and *Subcarrier*)

Compressed Time Division Multiplexing (abv. CTDM)

The method used by analog component video recorders to reduce the bandwidth needed to record the two color difference signals by half. Each color difference signal is time compacted so that the two signals, chained one after the other, span the same time period as the luminance signal. This is the analog equivalent of digital chroma subsampling. (See also *Analog*, *Video*, *Bandwidth*, *Signal*, *Color Difference Signals*, *Luminance* and *Chroma Subsampling*)

Compression

(See *Data Rate Reduction*)

Compression Ratio

A ratio of data rates, before and after data rate reduction. If a data rate reduction method reduces a data rate to one-tenth its original rate, it realized a compression ratio of 10:1. (See also *Data Rate* and *Data Rate Reduction*)

Control Track (abv. CTL)

A repetitive pulse signal recorded by a videotape recorder at the edge of a videotape. The control track pulses allow a videotape player to adjust the speed and position of its moving parts so that the recorded video information can be recovered. It also aids a player to synchronize its reproduced video signal with an external timing signal. (See also *Signal*, *Videotape*, *Video*, *and Information*)

Crease

A persistent physical deformation of magnetic recording tape caused by a pressed fold.

Cross-Color

Visual distortions caused by an analog video decoder's inability to perfectly separate the luminance and chrominance components of a composite video signal. Cross-Color is a distortion of the chrominance signal caused by rapid repeated shifts between light and dark. This distortion appears as false colors imposed on color-free textures or stripes. (See also *Analog*, *Video*, *Decoding*, *Luminance*, *Chrominance, Composite Video,* and *Signal*)

Cross-Luminance

Visual distortions caused by an analog video decoder's inability to perfectly separate the luminance and chrominance components of a composite video signal. Cross-Luminance is a distortion of the luminance signal caused by sudden color shifts. This distortion appears as a fine moving pattern along the edge of the color transition and is commonly referred to as Dot-Crawl. (See also *Analog*, *Video*, *Decoding*, *Luminance*, *Chrominance, Composite Video,* and *Signal*)

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D

Data

A collection of numbers representing information in digital form or comprising a set of computer instructions. (See also *Information* and *Digital*)

Data Rate

The rate at which data is collected, generated or exchanged. Usually expressed as bits-per-second (bps) often in association with a metric prefix such as Kilo (K) or Mega (M). (See also *Data* and *Bits*)

Data Rate Reduction (or Compression)

The act of, or method for, reducing an established data rate by reducing the amount of data that is exchanged in a given period of time. This may be done by altering a representation of information into a more efficient form, or by eliminating data that is redundant or non-essential. Data Rate Reduction is also referred to as Compression. Sophisticated data rate reduction methods employ techniques which identify data that may be eliminated without causing a perceivable change in the information represented by the data. (See also *Data, Data Rate* and *Information*)

Decoding

Analog Decoding: The process by which a composite video signal is converted into component video signals. This involves separating the luminance and chrominance components of a composite video signal followed by recovery of the color difference signals from the chrominance signal. (See also *Composite Video*, *Component Video*, *Video*, *Signal*, *Luminance*, *Chrominance* and *Color Difference Signals*)

Digital Decoding: The process of reconstructing data sets that have been combined and compressed. Combined data sets are decompressed and separated so the information the data sets represent can be recovered. (See also *Data*, *Information* and *Data Rate Reduction*)

Digital

Representing information or instructions as a set of numbers typically using binary notation. (See also *Information* and *Binary*)

Direct Color

An analog method of directly recording color composite video signals onto magnetic tape without reducing the bandwidth of the chrominance component. (See also *Analog*, *Composite Video*, *Video*, *Signal*, *Chrominance* and *Bandwidth*)

Dot-Crawl

(See *Cross-Luminance*)

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Dropout

A momentary loss of recorded video information. Dropouts occur when there is an interruption of the signal recorded on or reproduced from a videotape due to contamination or tape defects. Dropouts often appear as dots, streaks, or horizontal bars which appear and disappear quickly. Circuits within or external to a video recorder may perform Dropout Compensation to mask the appearance of dropouts. (See also *Information*, *Signal*, *Video*, *Videotape* and *Dropout Compensation*)

Dropout Compensation

An electronic technique which helps mask the appearance of dropouts. Image information is lost when a dropout occurs leaving a gap in the image which is filled with random static. This static may be very bright or very dark and quite noticeable. Video recorders detect the loss of information and direct dropout compensation circuits to replace the static with adjacent image information. Dropout compensators memorize a small amount of video information and will use information from the area of the image just above the dropout to replace the static. (See also *Dropout*, *Information* and *Video*)

E

Edge Damage

A physical deformation or wrinkling of magnetic recording tape along its edge. This is usually the result of the tape's edge forcibly rubbing against an adjacent surface while it is advancing or rewinding.

Encoding

Analog Encoding: The process of converting component video signals into a composite video signal. This involves modulating a subcarrier signal with the two color difference signals to create a chrominance signal which is then mixed with a luminance signal. (See also *Component Video*, *Composite Video*, *Video, Signal*, *Modulate*, *Subcarrier*, *Color Difference Signals*, *Chrominance* and *Luminance*)

Digital Encoding: The process of combining and compressing digital information. Multiple data sets representing different types of information such as audio and video are combined. Data rate reduction is employed to allow lower performance digital systems to accommodate the data. (See also *Data Rate Reduction*, *Digital*, *Information*, *Data*, *Audio* and *Video*)

ENG

An abbreviation for Electronic News Gathering. This refers to the practice of using portable video equipment for news gathering instead of film equipment. ENG eliminated the need to process film before being broadcast, shortening the time between news gathering and broadcast. (See also *Video*)

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F

Face

The large flat top surface of a videocassette shell. The face usually contains an area reserved for a label. (See also *Shell*)

Ferric-Oxide Tape

A form of magnetic recording tape whose magnetizable layer contains particles of ferric oxide, a compound including both iron and oxygen.

Field

A video field contains one-half the information contained in a video frame. A field contains every other horizontal row or line of information. Displaying a frame of information by sequentially displaying two fields at twice the frame rate reduces the impression of flicker. The method of displaying frames as two fields is known as interlace scanning. The method of sequentially displaying full frames is known as progressive scanning. (See also *Frame*, *Frame Rate, Video* and *Information*)

Field Rate

The number of fields used each second to produce the impression of motion. Field rates are specified in fields per second (fps). Standard video field rates vary from 48 fps to 60 fps. (See also *Field*)

Format

A specific recording configuration. When used in reference to film, examples include 8mm, Super 8, 16mm, etc. When used in reference to magnetic audio recordings, examples include ¼" open reel, compact cassette, microcassette, etc. When used in reference to magnetic video recordings, examples include Betacam, Umatic, VHS, etc. Recordings of a particular format adhere to an extensive set of mechanical and electrical standards.

Frame

A full-screen still-image of video information. A continuous sequence of multiple frames produced over a period of time, with each frame's image differing slightly from the next, creates an impression of motion. (See also *Video* and *Information*)

Frame Rate

The number of frames used each second to produce the impression of motion. Frame rates are specified in Frames per second (Fps). Standard video frame rates vary from 24 Fps to 60 Fps. The most common film frame rate used for cinematography is 24 Fps. (See also *Frame*)

G

Generation Loss

The deterioration of audiovisual information which occurs when copying information represented in an analog form. This deterioration results in the loss of image clarity and sound fidelity. (See also *Audiovisual, Information* and *Analog*)

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H

Hardware

Devices which record, play, or process audiovisual information, or which execute instructions in the form of software. (See also *Information* and *Software*)

Head Clog

An accumulation of dirt or other contaminant on video heads such that the air gap component of the heads is bridged or filled. When clogged, the heads will be unable to record a signal onto a magnetic tape and will also be unable to retrieve a signal from a tape. Attempts to play a tape with clogged heads will result in a reproduced picture that is blank or all static. (See also *Video Head* and *Signal*)

Heterodyne Color

A method used by low-bandwidth video recorders to record a color composite video signal. This method involves shifting the frequency of the chrominance subcarrier to a lower frequency. This method is also known as Color-Under. (See also *Video*, *Composite Video*, *Bandwidth*, *Signal*, *Chrominance* and *Subcarrier*)

High Definition

A second generation of international video standards which incorporate digital technology, increased image resolution, increased frame rates and progressive scanning. (See also *Video*, *Digital, Frame Rate* and *Field*)

Horizontal Line

A portion of a video image extending from the left edge to the right edge of the picture whose height is equal to the height of the smallest picture element. In analog video, a horizontal line has a height equal to that of a single trace of an electron beam across the face of a camera or picture tube. In digital video, a horizontal line is equal to one row of pixels. (See also *Video*, *Analog*, *Digital* and *Pixel*)

Hue

The tint of a color such as red, orange or yellow. A color's hue is determined by the relative amount of red, green and blue light mixed together to form the color.

Hydrolysis

The decomposition of a substance in reaction to the addition of water. Hydrolysis results in the break-down of chemical bonds. Magnetic tape which has been stored in a humid environment often suffers condition issues related to hydrolysis.

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I

Information
: The picture and sound elements comprising audiovisual content. Audiovisual information is represented by continuously variable signals in electrical analog systems, by continuously variable chemical densities in film systems, and by sets of numbers in digital systems. The quality and amount of information used to depict audiovisual content affects the clarity of pictures and the fidelity of sound. (See also *Signal*, *Analog* and *Digital*)

Interchange
: The ability of a recording to be played on a variety of players. The degree to which a recording can be successfully interchanged is a reflection of the recording's adherence to mechanical and electrical standards established for the recording format. (See also *Format*)

Interlaced Scanning
: (See *Field*)

L

Lossless Compression
: A class of data rate reduction methods that permit unaltered original information to be perfectly reproduced from a data-reduced representation. Lossless compression is reversible. These methods rely on techniques which increase the efficiency of information representation. (See also *Information*, *Data*, *Data Rate* and *Data Rate Reduction*)

Lossy Compression
: A class of data rate reduction methods that do not permit unaltered original information to be perfectly reproduced from a data-reduced representation. Lossy compression is irreversible. These methods rely on techniques which selectively discard information. The information to be discarded is selected based on the degree to which the loss is perceivable. (See also *Information*, *Data*, *Data Rate* and *Data Rate Reduction*)

Luminance
: The black & white component of video. Luminance conveys the brightness values at each point of an image. Also known as the Y Signal. (See also *Video*)

M

Metal-Particle Tape
: Magnetic recording tape which contains pure metal particles in its magnetizable layer. This is a second generation tape formulation which replaces the metal oxide particles used in earlier formulations with pure metal particles resulting in improved performance.

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Modulate

The variation of one or more properties of a steady-state carrier signal for the purpose of conveying information. Properties such as frequency, phase or amplitude of the carrier may be varied in order to impose the characteristics of one or more additional signals on the carrier. The steady-state characteristics of the carrier signal are chosen so that it can efficiently pass through a communication channel and be selectively received on the other end. For example, high frequency carrier signals modulated by audio signals pass through the atmosphere and are selectively "tuned in" by receivers known as radios. (See also *Signal*, *Information*, *Phase Shift* and *Amplitude*)

P

Phase Shift

The relative timing difference between two similar signals. (See also *Signal*)

Pixel

A single point element of an image.

Progressive Scanning

(See *Field*)

R

R-Y Signal

One of two color difference signals used in component video systems. The value of the R-Y signal is calculated using a simple algebraic combination of red, green, and blue values. Red is the most prominent color component of this signal. (See also *Signal*, *Video*, *Y Signal*, *R-Y Signal*, *Color Difference Signals* and *Component Video*)

S

Sampling

The process of periodically measuring a continuously varying quantity or signal. Sampling converts the continuous variation into a set of discrete numbers. Each number represents the value of the quantity or signal at the moment the sample measurement was taken. In order for the set of numbers to accurately represent the continuous variation, samples must be taken sufficiently close together in time. (See also *Signal*)

Sample Rate

The frequency of sample measurements of a continuously varying quantity. This is usually expressed as a number of samples per second. The standard unit of measure for frequency, Hertz, is most often applied in conjunction with a metric prefix such as Kilo (K) or Mega (M) when specifying a sample rate. A sample rate of 48 KHz indicates that 48,000 samples per second are being taken. (See also *Sampling* and *Signal*)

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Saturation
: The intensity or strength of a single color. Visible light contains some amount of white light. Brightness is a measure of the strength of this white light. White light is a mix of all colors. In addition to white light, most visible light contains an amount of light of pure color. Saturation is a measure of the strength of this light of pure color.

Shell
: The plastic housing enclosing the tape reels of a cassette tape.

Signal
: A continuously varying electrical quantity (such as voltage or current) which represents another time varying quantity such as the brightness of light or intensity of sound. Signals are used to convey information by electrical means. (See also *Information*)

Software
: A set of computer instructions also known as a program. Software instructions must be executed by compatible computer hardware which can interpret the instructions and correctly perform the specified tasks. (See also *Hardware*)

Spine
: The long narrow rear edge of a cassette shell. The spine is the edge of a videocassette facing the operator when the cassette is inserted into a recorder. The spine often has an area reserved for a label. (See also *Shell*)

Standard Definition
: A set of video standards for image resolution and frame rates matching those of 1st generation analog video. (See also *Video*)

Subcarrier (abv. SC)
: A high frequency stead-state periodic wave which is modulated with the two color difference signals to form the chrominance signal. (See also *Signal, Modulate*, *Color Difference Signals* and *Chrominance*)

S-VHS
: Super VHS. A second generation of VHS recording with increased bandwidth achieved through the use of metal-particle tape. (See also *Bandwidth* and *Metal-Particle Tape*)

S-Video
: A two-wire video interconnection system which maintains separation of the luminance and chrominance signals. (See also *Video*, *Signal*, *Luminance* and *Chrominance*).

T

Tape Path
: The route a magnetic recording tape takes as it moves through a recorder, along with all the various mechanical components that guide the tape through the route.

Tape Path Alignment
: The process of precisely positioning the tape path components to properly guide a tape through a recorder in conformance with established standards. (See also *Tape Path*)

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Thread
: The act of initially positioning a magnetic tape along the tape path when a tape is mounted on or inserted into a recorder. Threading is performed manually by an operator on most reel-to-reel recorders and automatically by the recorder itself on all cassette recorders. (See also *Tape Path*)

Transcoding
: The digital process of digitally decoding and re-encoding a data sets for the purpose of altering the organization or compression of the data. (See also *Decoding* and *Encoding*)

Y

Y Signal
: (See Luminance)

V

Video
: An electronic means of conveying and recording moving visual images.

Video Head
: A component of a video recorder which converts a signal containing video information into a varying magnetic field which it imprints on a magnetic recording tape. Video heads also perform the reverse process by recovering a varying magnetic field recorded on a magnetic tape and converting it into a video signal. (See also *Signal*, *Video* and *Information*)

Videotape
: Magnetic recording tape used for the purpose of recording moving images.

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