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Desktop Video: Glossary of Terms (G-I) (8/93)

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TOPIC -----

This article describes desktop video terminology, words "G" through "I".

DISCUSSION -----

Gamut

The range of voltages allowed for a video signal, or a component of a video signal. Signal voltages outside of the range (i.e., exceeding the gamut) may lead to clipping, crosstalk, or other distortions.

Gate weave

An artifact of poor registration either during the film-to-tape transfer process or the actual filming that manifests itself as a weaving back and forth of the film image. See registration.

GBR

The same signals as RGB. The sequence is often rearranged to indicate the mechanical sequence of the connectors in the SMPTE standard.

Generation loss

With analog video formats extensive efforts are made to keep generations to a minimum since each successive generation will exhibit some loss of image quality in the form of noise and other artifacts. This characteristic varies from format to format. For example, 1-inch Type C exhibits almost imperceptible loss up to 4 generations while VHS shows considerable degradation each generation. With digital formats such as D-1 and D-2, however, this requirement is no longer necessary, since each copy can potentially be very close to perfect. This is especially important for applications such as compositing which require images to be dubbed several times.

Generations

The number of times a video clip is copied or processed. See generation loss.

Genlock

The capability to synchronize video signals from one device with those of another video source. This is required when mixing signals together as in overlaying computer graphics on an image from a camera, VCR or videodisc player to prevent screen flicker or rolling. Genlocking a Macintosh requires changing its video scan rate, switching the video into an NTSC timed interlaced image which can then be synchronized with the other video source. This requires either an encoder box attached to a video card which supports genlock or a scan converter. Genlock is a process of sync generator locking. This is usually performed by introducing a composite video signal from a master source to the subject sync generator. The generator to be locked has circuits to isolate vertical drive, horizontal drive and subcarrier. The process then involves locking the subject sync generator to the master subcarrier, horizontal, and vertical drives so that the result is that both sync generators are running at the same frequency and phase.

Ghost

A shadowy or weak image in the received picture, offset either to the right or to the left of the primary image. It is the result of transmission conditions where secondary signals are created and received earlier or later than the primary signal caused by a reflected RF signal.

Gray scale

A series of tones which range from true black to true white, it is usually expressed in 10 steps in video applications.

HDTV

High Definition Television. Still, to this day, limited to some very high-end applications. The FCC is close to establishing a broadcast standard for HDTV. The SMPTE has proposed a high definition television production standard consisting of 1125 lines, 2:1 interlace, 60 Hz field (30 frames/sec), a 16:9 aspect ratio and 30 MHz RGB and luminance bandwidth. Stay tuned for further developments.

Hertz (Hz)

The unit of frequency of vibration or oscillation, defined as the number of cycles per second. Named for the physicist Heinrich Hertz.

Horizontal blanking

The blanking signal that is produced at the end of each scanning line.

Horizontal blanking interval

The time between the display of the rightmost pixel on one line and the leftmost pixel on the next line.

Horizontal drive

See horizontal sync.

Horizontal resolution

The smallest increment of a television picture that can be discerned in the horizontal plane. This increment is dependent upon the video bandwidth and is measured in frequency or lines.

Horizontal scan frequency

The frequency at which horizontal sync pulses start the horizontal retrace for each line. A high frequency is needed for a non-interlaced scan. The horizontal sync frequency for a color Macintosh connected to the 13" RGB display is 35 KHz, while the NTSC frequency is 15.75 KHz. Projection of high resolution non-interlaced Macintosh color video requires projectors capable of 35 KHz horizontal sync frequency.

Horizontal sync

A signal created and used to synchronize the horizontal scan of a video signal, often combined with vertical sync into a composite sync. This signal is derived by dividing sub-carrier by 227.5 and then doing some pulse shaping. The signal is used by monitors and cameras to determine the start of each horizontal line. See horizontal scan frequency.

House sync

A common sync signal generated by a sync generator and fed to all video devices in an editing facility in order to synchronize the devices. See sync.

Hue

(1) The distinction between colors. Red, blue, green, yellow, etc. are hues. White, black, and gray are not considered hues. The dimension of color that is referred to a scale of perceptions ranging from red through yellow, green, blue back to red.

(2) The color tint of a video image. The color of an analog video signal is determined by three factors: hue, saturation and luminance. In a composite video signal, the hue is determined by the phase relationship to the color burst.

IEEE

The Institute of Electrical and Electronic Engineers, an organization which sets many of the standards in the electronic industry.

Interlace

An NTSC 525 line frame which is separated into two sequential scans, or fields, of 262.5 lines each. Field one scans the odd numbered lines and field two scans the even numbered lines creating two interlaced images per frame. The process results in 60 fields per second and is used to reduce the flickering which is apparent when the eye is presented with 30 images per second. In standard video, odd-numbered lines are drawn first. Most computer displays are not interlaced.

IRE scale, IRE units

A unit used for the measurement of video levels. The scale used for the graticule on a waveform monitor. 140 IRE represents 1.000 volts,

100 IRE represents 0.714 volts, while 1 IRE represents 0.007 volts.

ISO

Acronym for International Standards Organization.

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