

# TV Tech Basics for Operators

## Ongoing Glossary of Useful A/V Terms and Web Links

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**Note:** This Glossary contains a wide range of terms. Most entries are given a designation which will help readers know if the entry applies to **Legacy** (*L*) or outmoded technologies, TV Tech **Basics** (*B*), or **Advanced** (*A*) topics.

**1394** -- (*A*) Shorthand for IEEE-1394 data transmission standard, also known as Firewire or Sony iLink.

**1.33:1** -- (*B*) Aspect ratio of ordinary television, also called 4:3

**1.78:1** -- (*A*) Aspect ratio for widescreen television, also called 16:9

**3:1:1** -- (*A*) A way to describe the form of HDTV recorded by HDCAM: 3/4 of the number of active luma samples per line (1440 instead of 1920) and one-third as many active color samples per line (480), with color samples on each line

**4:1:1** -- (*A*) A way to describe the form of SDTV recorded by professional DV-based recorders (and U.S.-type consumer ones): 720 active luma samples per line and 180 for color, with color samples on each line

**4:2:0** -- (*A*) A way to describe the form of SDTV or HDTV typically compressed by MPEG: 720 or 704 (SDTV) or 1920 (HDTV) active luma samples per line, half as many for color, and half the number of samples vertically as there are active scanning lines

**4:2:2** -- (*A*) A way to describe the form of SDTV or HDTV typically used in studios: 720 or 704 (SDTV) or 1920 (HDTV) active luma samples per line, half as many for color, with color samples on each line

**480i** -- (*A*) Abbreviation for 720x486 interlaced standard definition (SDTV)

**480p** -- (*A*) Abbreviation for 720x486 progressive SDTV

**720p** -- (*A*) Abbreviation for 1280x720 progressive HDTV

**1080i** -- (*A*) Abbreviation for 1920x1080 interlaced HDTV

**601** -- See BT.601

**A/D Converter (ADC)** -- (A) Analog-to-digital converter, converts video or audio from analog to digital. These devices are generally specific to the formats and functions desired.

**ADSL** -- (A) Asymmetric DSL, with higher speed toward the subscriber than from

**AES** -- Audio Engineering Society

**AGC** -- (B) Automatic Gain Control, a circuit that automatically adjusts signal levels based on an expected known value (such as adjusting chroma level by using colorburst level as a reference).

**Anamorphic** -- (A) Anamorphic video appears to squeeze a 1.78 (16:9) picture shape into a 1.33 (4:3) image area. Viewed on a 1.33 screen an anamorphic video image will look tall and thin. Anamorphic video may be used to “fit” a 16:9 image intended for widescreen viewing into a standard 4:3 video frame during production and post. In film this process is done with lenses to allow a wide-screen image to be carried on a 35mm film frame (the anamorphic projection lens “unsqueezes” the picture).

**Artifacts** -- (A) In terms of imaging and compression, perceptually undesirable results of processing (e.g. blocks appearing in the picture that weren't in the original)

**Aspect ratio** -- (B) Ratio of picture width to height, typically wider for HDTV than for ordinary television. Can be described as a ratio with 1 representing the picture height (such as 1.78 to 1) or as an integer ratio (such as 16:9). Commonly used ratios: 1.33:1 for standard definition television; 1.78:1 for HD television; 1.85:1 for widescreen theatrical film; 2.39:1 (formerly 2.35) for Cinemascope theatrical. Sometimes 1.56:1 (14:9) is used as a compromise between 1.33 and 1.78 when material will be viewed on different displays.

**ATSC** -- (A) Advanced Television Systems Committee, a standards organization created by other industry groups and standards organizations. Although it is the source of (and is used synonymously with) the U.S. digital television standard, the first ATSC standard was actually related to ghost reduction for analog NTSC.

**AVC** -- (A) Advanced video codec, a bit-rate-reduction scheme also known as H.264 (ITU) and MPEG-4 Part 10 (IEC/ISO)

**Bandwidth** -- (B) Amount of frequency spectrum available for an analog signal, or amount of data capacity available for a digital signal.

**Bearding** -- (B) An overload condition on a CRT monitor where white or highly saturated areas appear to flow irregularly into darker areas. Similar to “bleeding whites.”

**Betacam** -- (B) Analog component tape format using 1/2” cassettes. Original Betacam was replaced by Beta SP which provided better quality and became a ubiquitous format since the mid-1980s.

**Blackburst** -- (B) Composite video signal consisting of syncs, colorburst and black setup. Typically used for “blacking” tapes before editing use, or as a house reference signal for equipment genlock. Also known as “color black.”

**Black level** -- (B) The video level represented on-screen by the darkest part of a picture. In NTSC this is 7.5 ire (also called “setup”) which is slightly brighter than blanking level (0 ire). PAL video and all component digital formats do not use 7.5 ire setup.

**Blanking Interval** -- (B) The time period during which electron beams in picture tubes return from right to left (horizontal blanking interval) or bottom to top (vertical blanking interval)

**Blooming** -- (B) An overload condition on a CRT where portions of the picture become out of focus due to excessive white level. Often caused by unterminated signals.

**Brightness** -- (B) Generally refers to the black level (and black level control) on a monitor.

**Broadcast flag** -- (A) A retransmission control descriptor, also the FCC order relating to it involving signal security issues

**BRR** -- (A) Bit-rate reduction, commonly called compression

**BT.601** -- (B) The basic standard-definition digital video standard of the ITU (CCIR-601)

**Burst** -- See Colorburst

**CATV** -- Community-antenna television, cable television

**CBR** -- (A) Constant Bit Rate, compression system that maintains a constant bit rate of data regardless of content. This may mean that more complex parts of a signal are coded with less bits than ideally desirable.

**Chrominance (chroma)** -- (B) The color portion of a video signal.

**Clipping** -- (B) When peaks of a signal are cut off or flattened because circuitry cannot process high levels. In audio this is heard as hard distortion. In video it may appear as overly bright (or dark), flat areas of picture.

**Clone** -- (B) A tape copy made using only digital connections (eg: Digibeta to Digibeta using SDI). While clones are NOT absolute perfect copies they are essentially identical--degradation is undetectable.

**Closed Captioning** -- (B) The process of inserting text data on Line 21 of a video signal which can be read and displayed on-screen. Closed captioning requires both encoders and decoders (usually built into display devices).

**CODEC** -- (B) EnCOder/DECOder, a process or device which turns signals of greater bandwidth into signals of smaller bandwidth, or another format (encoding), then reverses the process (decoding). A codec is often an algorithm for compressing and decompressing digital data. The process of turning analog component video into composite is also a form of encoding.

**COFDM** -- (A) Coded orthogonal frequency-division multiplex, the form of transmission used in DVB-T

**Color-balance** -- (B) The condition when “white” or “black” contain as little residual chroma as possible. Cameras are color-balanced before shooting (white-balance and black-balance) to achieve the purest luminance, thus compensating for the apparent color temperature of the environment. Signals or displays that are out of color-balance will have a “color cast” over the entire picture (like sepia-tone images).

**Colorburst** -- (B) Sample packet of chroma subcarrier included in the horizontal blanking portion of composite video signals, used to establish a “reference” for chroma information in the active picture.

**Color correction** -- (B) The practice of adjusting black, gamma and white aspects of an image to achieve blacks, grays and whites with the least residual chroma, thus rendering the most accurate reproduction of the scene by removing any “color cast.” Color correction requires special tools and cannot be done with a simple hue control.

**Color-difference channels** -- (B) Name for the R-Y and B-Y signals in component formats such as Betacam.

**Color-framing** -- (L) A system in NTSC television which defines four fields, and the relationship between colorburst and horizontal sync, so that chroma can be correctly decoded on playback from tape. Often problematic in linear editing systems with 1” tape.

**Color-space** -- (B) Theoretical range of chrominance values which are allowable or usable in a particular format. Color-spaces for various formats are viewed on a chromaticity diagram in which white values appear at the center and applicable colors generally form a triangular region around white.

**Color temperature** -- (B) For sources of emitted light, the color temperature describes whether “white” is more blue or more red, measured in Kelvin degrees. Lower temperatures tend to be redder. Incandescent stage lighting is around 3200K, daylight is considered 6500K (also SMPTE “C” phosphors in CRTs are 6500, known as D65).

**Component** -- (B) Video carried as three signals, typically one luma and two color-difference channels (separate red, green, and blue signals are also possible)

**Composite** -- (B) A single video signal carrying both luminance and color, plus synchronizing information

**Compression** -- (B) Term commonly used to describe bit-rate reduction achieved through more efficient coding of pictures and sounds. When it is perfectly reversible it is called lossless. When it isn't perfectly reversible, but no one would notice, it's called perceptually lossless. Otherwise, it's lossy and generates what are called artifacts.

**Contrast ratio** -- (B) The difference between lightest and darkest areas of a picture. In cameras, the difference between the noise floor and the chosen Reference White level.

**Control Track** -- (B) A pulse signal recorded on a longitudinal track of virtually all video tape formats (analog and digital) to regulate tape playback speed and servo positioning. Video tapes **MUST** have control track present to playback consistently.

**Cross-pulse** -- (B) Function on a video monitor which displaces the raster horizontally and vertically so that blanking areas and sync are visible. Also called “H/V Delay” on some monitors.

**CRT** -- (B) Cathode-ray tube, such as a picture tube or video-projection tube.

**D1** -- (L) Original digital component tape format, using 3/4” (19mm) cassettes and uncompressed 10-bit 4:2:2 recording. Manufactured by Sony and Ampex (now essentially obsolete).

**D2** -- (L) Sony digital composite tape format using similar cassette as D1. Used for a short time in early digital production but quickly replaced by component formats.

**D3** -- (L) Panasonic digital composite tape format using similar cassette as D5. Quickly replaced by component formats.

**D5** -- (A) Panasonic digital component tape format for high-end use. Uncompressed 10-bit 4:2:2 recording (also 16:9 aspect recording at 8-bit) on 3/4" cassette.

**D5-HD** -- (A) Enhanced version of D5 format designed for full-bandwidth HD recording.

**D7** -- (B) SMPTE designation for Panasonic's DVCPro 25 tape format.

**D9** -- (B) SMPTE designation for JVC's Digital-S tape format.

**D/A converter (DAC)** -- (A) Digital-to-analog converter, , converts video or audio from digital to analog. These devices are generally specific to the formats and functions desired.

**dB** -- (A) Decibel, a unit of measurement indicating a ratio between two signals or power levels. Decibels are logarithmic in nature so are good for representing measurements that relate to human sight and hearing.

**DBS** -- (A) Direct broadcast(ing by) satellite

**DDR** -- (B) Digital disk recorder, term for professional standalone devices that record video on hard drives. Beginning in the 1980s these were expensive and held very little content, used primarily for compositing multi-layer effects. Many modern products with their own names, such as the Tivo PVR, are still DDRs.

**DI** -- (A) Digital Intermediate, the digital processing of (generally theatrical) motion pictures between acquisition and distribution

**dialnorm** -- (A) A parameter of the U.S. DTT signal allowing dialogue levels to be normalized across channels and programs; broadcasters are required to adjust it appropriately

**Digital Betacam** -- (B) Sony component digital tape format using Betacam-size cassettes and relatively gentle lossless compression with 10-bit 4:2:2 coding.

**Digital-S** -- (B) JVC component digital tape format based on the VHS-size cassette. Similar to DVCPro and other formats.

**D-ILA** -- (A) Digital image light amplifier, a JVC projection-display technology in the LCoS category

**Distribution Amplifier (DA)** -- (B) A device that provides several duplicate (and isolated) output signals from one input. Devices can be audio or video, digital or analog.

**DLP** -- (A) Digital light processing, Texas Instruments' trademark for projection systems based on their micro-mirror chips.

**DSL** -- (A) Digital subscriber line, a phone-company line carrying high-speed data.

**DTCP** -- (A) Digital transmission content protection, also sometimes called 5C, intended for use with 1394

**DTT** -- (A) Digital terrestrial television broadcasting.

**Double-system sound** -- (A) Field production in which sound is recorded on a separate transport from picture. Typically for film shoots, using Nagra or other audio recorders.

**DV** -- (B) Both a recording format using 1/4-inch tape in a cassette (commonly called MiniDV) and the compression system used in DV recorders (and also in other recorders).

**DVCPro** -- (B) Panasonic's family of digital tape formats based on the DV cassette. DVCPro25 uses a 25Mb/sec data rate (same as DV but with differences in the recording format). DVCPro50 is 50Mb/sec, with increased data in the color channels. DVCPro100 is a compressed HD format at 100Mb/sec.

**DVD-R, DVD+R** -- (B) Different forms of record-once DVD-recording systems

**DVD-RAM, DVD-RW, DVD+RW** -- (A) Different forms of re-recordable DVD recording systems.

**DVE** -- (L) Digital Video Effects, devices for manipulating pictures using digital processing. Typical uses are for page turns, zooms, push-ons, rotation, etc. DVEs were originally quite expensive standalone processors attached to editing systems. Most DVE effects are now easily done in software.

**DVI** -- (A) Digital visual interface, a high-data-rate connection scheme used for monitors, two versions of which also include analog component video

**DVI-A** -- An analog-only version of DVI.

**DVI-CE** -- HDMI

**DVI-D** -- The basic DVI digital connection.

**DVI-I** -- A version of DVI with both digital and analog connections.

**D-VHS** -- (A) Data VHS, able to record compressed television signals, usually via 1394 connection

**DVR** -- (A) Digital video recorder, sometimes used as a synonym for PVR.

**EAV** -- (B) End of Active Video, code in digital video stream indicating end of the picture portion.

**EDTV** -- (A) Extended-definition (or enhanced-definition) television, generally meaning 480p.

**E/E (E to E)** -- (B) Electronics-to-Electronics mode, the signal input to a VTR (or other device) passes through to the output, regardless of tape status.

**EFP** -- (B) Electronic field production, ENG with higher production values.

**ENG** -- (B) Electronic news gathering, sometimes used as shorthand for a professional camcorder.

**EPG** -- (A) Electronic program guide.

**FCC** -- The U.S. Federal Communication Commission.

**Field** -- (B) In interlaced television systems, 1/2 of the total lines per screen.

**Film recorder** -- (A) Device for transferring video to film, usually very high resolution.

**Flat panel** -- (A) A TV display screen that is both thin and flat, as in plasma and direct-view LCD.

**Flat screen** -- (A) A TV display screen (including CRT) that is not convex.

**Frame** -- (B) In interlaced television, all lines of a single screen image.

**FTP** -- (A) File Transfer Protocol, an internet data protocol that allows files to be up- and downloaded between a host server directory and other computers.

**Framesync** -- (B) Device which stores at least one frame of video. Can be used to produce still images, but usually used to genlock non-synchronous sources (such as a satellite feed) to a house reference.

**Gamma** -- (A) Non-linear area of response in cameras and monitors (generally in the mid-tones). Cameras and monitors have complementary gamma curves so that the final viewing result is linear.

**Gamut** -- (B) A range of allowable colors in a particular video format or system. NTSC television has a gamut based on established transmission standards and many colors which are produceable in component or digital video systems are “illegal” in NTSC.

**Genlock** -- (B) Feeding a sync reference signal (typically black or “house sync”) to a device which then produces output signals in synchronization with the reference. Example: VTRs will playback tapes “locked to” house sync, so that the signal from the VTR can be switched and mixed with other signals.

**GLV** -- (A) Grating light valve, a laser projection-display technology.

**GOP** -- (A) Group of Pictures, part of the MPEG-2 specification that describes the structure of an MPEG-2 stream in which video is compressed into I, P and B frames. I-frames contain picture information which does not require any other frames to decompress, P-frames contain data for forward motion compensation (predictive), B-frames contain bi-directional motion-compensation data.

**Graticule** -- The measurement scale on a waveform monitor or vectorscope.

**H.264** -- ITU designation of AVC.

**HDCam** -- Sony’s HDTV tape format. Not as full-bandwidth as D5-HD but more robust than DVCP100 or HDV. An improved version, HDCam SR, is also available.

**HDCP** -- High-bandwidth digital content protection, intended for use with DVI and HDMI connections

**HDMI** -- High-definition multimedia interface, originally called DVI-CE. Similar to DVI, but with smaller connectors and optionally including audio and remote-control functions

**HDTV** -- High-definition television, defined by CEA to be at least 720p or 1080i, even if displayed on a 4:3 screen, as long as the image may be shrunk on that screen to a 16:9 shape

**HDV** -- High-definition video, systems for recording HD on a DV cassette. Two flavors exist: HDV1 is JVC's 720p30 format, HDV2 is Sony's 1080i60 format. Both use long-GOP MPEG compression but the implementation of the GOPs is different.

**Headroom**-- Difference in level between the loudest part of a signal and the maximum allowable level (or onset of distortion) in a system. In other words, how much room is left before overload will occur. Usually applied to audio, but can also work for other signal types.

**Hue** -- The quality of a color being blue, green, red, etc. In NTSC hue is determined by the phase of subcarrier at each pixel with reference to colorburst, which is measured as degrees around the vectorscope circle.

**IEC** -- International Electrotechnical Commission.

**IEEE** -- The Institution of Electrical and Electronics Engineers.

**Interlaced** -- Scanning system with each frame divided into two sections, one carrying the odd-numbered scanning lines and the other the even, and the two sections transmitted (or captured or displayed) sequentially. Opposite of progressive scan.

**IPTV** -- Internet-protocol television, a form of digital distribution of television programming using IP data protocol (need not be carried on the actual Internet).

**IRE** -- (Institute of Radio Engineers) Scale for measuring video levels on a waveform monitor.  
Typical readings:     Picture Black Level: 7.5 IRE (above zero volts) for NTSC systems  
                          Picture White Level: 100.0 IRE (above zero volts)  
                          Blanking Level : 0.0 IRE (zero volt level)  
                          Synchronization : -40.0 IRE (below zero volts)

**ISO** -- International Standardization Organization.

**ITU** -- International Telecommunications Union.

**JPEG** -- Joint Picture Experts Group, a committee that has come up with a number of compression schemes and related standards for still and moving images.

**Keying** -- Process in which a foreground scene is inserted over a background scene. All keys have three basic elements: background video, key signal (hole-cutter), and foreground video (insert). Luminance and linear keys use luminance levels to decide when the inserted video should appear instead of the background. Chroma keys use chroma hue to make this decision.

**Kinescope** -- In early television, before videotape, live shows could be recorded onto film using kinescope (basically a film camera pointed at a TV monitor). Archival material of pre-tape television, if it exists, is only available on kinescope films.

**Laserdisc** -- An analog optical recording format, now generally out of use.

**LCD** -- Liquid crystal display.

**LCoS** -- Liquid-crystal on silicon, a microdisplay used for projection.

**LED** -- Light-emitting diode.

**Lines** -- Either scanning lines (active or total) or lines of resolution, hypothetical vertical alternating white and black lines representing the finest detail that can be carried

**Lip-sync** -- Matched picture and sound timing. Lip-sync is affected by any processing that delays video or audio separately (such as a video framestore or DVE, standards conversion, etc.). The cumulative effect of many delays can produce a final product with drastically out-of-sync picture and sound. Most people cannot perceive less than 3 or 4 frames of lip-sync error, experts might catch 2 frames.

**LTC** -- Longitudinal timecode, timecode signal recorded as “audio” on a linear audio track of tape.

**Luminance (luma)** -- The portion of a video signal containing only black-&-white information.

**MATV** -- Master-antenna television.

**Match-frame** -- Term in linear videotape editing for the point at which one edit stops and the next edit begins, requiring precise synchronization between the source VTRs and the recorder.

**Mbps (Mbit/sec)** -- Million (mega) bits per second.

**MBps (MB/sec)** -- Million (mega) bytes per second. A byte is 8 bits.

**MHz** -- Megahertz, million cycles per second.

**Microdisplay** -- A chip-sized display system, such as DLP or LCoS, used in projection systems.

**Monochrome** -- In typical use, black-&-white.

**MP3** -- MPEG1/Layer 3, a standard for lossy audio compression.

**MPAA** -- Motion Picture Association of America.

**MPEG** -- Moving Picture Experts Group, a committee that has come up with a number of compression schemes and related standards. MPEG-1 is the standard on which such products as Video CD and MP3 are based. MPEG-2 is the standard on which such products as Digital Television set top boxes and DVD are based, and MPEG-4 is the standard for multimedia on the web.

**MTF** -- Modulation transfer function, the energy (contrast ratio) that can pass through a system at different finenesses of detail.

**Multipath** -- The arrival at a receiver of signals from a single transmitter that have taken different paths (and, therefore, different amounts of time to arrive); in analog television, this condition is seen as ghosts.

**NAB** -- The U.S. National Association of Broadcasters and its annual convention and equipment exhibition.

**Nagra** -- Company that makes audio recorders for field use. Film audio recordists carried 1/4" tape Nagras for decades.

**NCTA** -- The U.S. National Cable & Telecommunications Association.

**Non-integer frame rate** -- Typically 23.976, 29.97, or 59.94 used in NTSC countries.

**NTSC** -- National Television System Committee, the first of which standardized the U.S. 525 (total) line/30 frame system and the second of which added compatible composite color. NTSC is sometimes used in the U.S. to refer to analog television.

**Open Captioning** -- Caption information that is part of the visible picture content (subtitles for example).

**Overscan** -- Amount of active picture area that is not seen on consumer monitors. The monitor intentionally displays the picture slightly beyond the boundaries of the screen so that edge artifacts in the signal will not be seen. Overscan is typically 5-10% of picture size.

**Patchbay** -- A method of connecting equipment inputs and outputs using removable cables (patch cords) to change the routing paths. Patchbays, also called patch panels, consist of individual "jacks" (female connectors) mounted on a fixed metal or plastic panel. Cables from equipment connect to the rear side of jacks and patch cords are inserted in the front. Video and audio generally use different designs of jacks and cords due to their different frequency requirements.

**P2** -- Solid-state memory card used in place of tape in Panasonic cameras and recorders.

**PIP** -- picture-in-picture, a feature requiring two tuners to insert one image within another.

**Pixel** -- Picture element, the smallest part of a picture captured, transmitted, or displayed

**PLUGE** -- (Picture Line Up Generation Equipment) A test pattern (often incorporated into other test signals) for setting black level on monitors. Consists of a patch of black with patches of blacker-than-black and whiter-than-black on each side. When adjusted properly only the whiter patch should be visible.

**Progressive** -- With all scanning lines of a frame occurring sequentially (opposite of interlaced), sometimes called sequential.

**PSIP** -- Program and System-Information Protocol, an ATSC standard covering such non-program data as an electronic program guide.

**Pull-down (2:3)** -- Method of repeating fields during the telecine process to fit 24 frames of film into 30 frames of video.

**PVR** -- Personal video recorder, such as ReplayTV or TiVo.

**Raster** -- The scanned area of a picture display.

**QoS** -- Quality of Service, a measure of the reliability of data delivery timing in a network. Typical network traffic does not require data packets to arrive in an entirely predictable fashion, but delivery of video or audio requires a “guaranteed QoS” to assure that the necessary data is always available when the output device needs the next pixel or audio sample. This also relates to how many dropped packets must be re-sent.

**RGB** -- Red, green and blue: Three primary component signals used in cameras and monitors (also sometimes used by graphics equipment). Sync information is often carried on the green channel. RGB is also used as a “color-space” for manipulating luma and chroma values.

**Reference** -- With respect to genlock of equipment, the signal that is used to lock equipment to a common sync generator (typically blackburst).

**RF** -- Radio Frequency, a generic term for modulated signals which are in the KHz and MHz range-- used to differentiate a signal such as wireless mics or cable TV from “baseband” video and audio (non-modulated signals in their native formats).

**Routing Switcher (router)** -- Device which allows connection of one or more audio or video signals to one or more outputs. A 10x1 router allows any of ten input signals to be sent to one output. Large facilities have routers with hundred of inputs and outputs which eliminates the need for manual patching in most situations.

**Safe Action Area** -- An area of the video screen that is about 90% of the total picture area. It is symmetrically located inside of the picture border. Since home televisions are overscanned (do not show the very edges of the image) keeping content within the safe action area ensures it will be seen.

**Safe Title Area** -- The area for safe title is inside the safe action area and amounts to about 80% of the total picture area. Titles and text are usually kept within the safe title area to make sure they can be seen in their entirety.

**Sample** -- A moment in time, the smallest element in a digital video or audio signal.

**Saturation** -- Amount (intensity) of chroma in a signal.

**SAV** -- Start of Active Video, code in digital video stream indicating beginning of the picture portion.

**SCTE** -- The Society of Cable & Telecommunications Engineers.

**SDTV** -- Standard-definition television, a term sometimes used to refer to ordinary television and sometimes to the component-digital form of ordinary television (720 x 483 in NTSC countries)

**Setup** -- See Black Level

**Sharpness** -- A psychophysical function found to be proportional to the square of the area under a curve plotting contrast ratio against detail resolution.

**SMPTE** -- Society of Motion-Picture and Television Engineers. A standards-setting organization for the film and television industries.

**SMPTE 259** -- The SMPTE standard defining the serial digital interface (SDI) used in component digital VTRs and other equipment. This standard does not deal with sampling rates, coding or any data content.

**SMPTE 292** -- The SMPTE standard defining the serial digital interface for HD (HD-SDI) used in HDTV digital VTRs and other equipment. This standard does not deal with sampling rates, coding or any data content.

**SNR** -- Signal-to-noise ratio, describes the difference (usually in decibels) between the lowest desirable signal level (or a reference level) and any noise in a system. Larger values are better.

**Standards Converter** -- A device for converting between television standards, such as NTSC to PAL. Cheap standards converters are available, even built-in to VCRs, but their quality is poor. It is extremely difficult to do high-quality standards conversion and good converters are very expensive.

**STB** -- Set-top box, the receiver/converter used by cable and satellite companies to decode their proprietary signals into normal video and audio (or RF).

**Subcarrier** -- 3.58 MHz sinewave signal added to black and white composite video which allows encoding of color information using the phase relationship between picture elements and a reference colorburst. Component video does not utilize subcarrier.

**Sync** -- A signal (often blackburst) used to lock video equipment to a common reference. Also, parts of the video signal used for timing and control of scanning.

**Telecine** -- Device for transferring film to video--very sophisticated machines producing extremely high quality images (as opposed to a "film chain" which points a video camera at a projector).

**Television standard** -- System of TV signals used in particular countries. NTSC is used in the U.S., Canada, Japan and some other places. Most of Europe uses PAL, a few countries use SECAM. The systems have different line counts and frame rates, and different methods of encoding color.

**Termination** -- To prevent signal degradation video interconnections must maintain a match between the source and load impedance. Every video cable must terminate with a 75-ohm load, either internally to the equipment or with a physical terminator attached. Unterminated video will be twice the correct level. Termination can also apply to audio but is rarely used any more.

**Timebase Corrector (TBC)** -- Device which stores one or more lines of video in memory and reads out locked to reference in order to correct signal (timebase) errors caused by the tape recording process.

**Timecode** -- A data signal which assigns discrete numbers for hour:minute:second:frame to each video frame. The data system is an 80-bit word per frame and may be recorded as longitudinal audio, in the vertical interval of analog tape, or as metadata.

**UDI** -- Unified display interface, similar to HDMI.

**Underscan** -- Function on a video monitor which shrinks the raster so that picture edges (blanking areas) are visible.

**VBR** -- Compression system that allows the bit rate of data to vary with content. This allows more complex parts of a signal to be given more data bits for better quality.

**VC-1** -- A SMPTE standardized advanced video compression system based, in part, on WMV-9.

**VDSL** -- Very-high-speed DSL.

**Vectorscope** -- Specialized oscilloscope for analyzing the chroma portion of video signals. The display plots hue and saturation on a circular (360-degree) scale which relates to the subcarrier phase of picture vs. colorburst. Vectorscope displays are often simulated when viewing digital video to provide a familiar indicator of chroma and hue.

**VITC** -- Vertical interval timecode, timecode signal recorded as “data” during the vertical blanking interval. VITC can be read while tape is not moving because video heads are spinning.

**VOD** -- Video on demand.

**Waveform monitor** -- Specialized oscilloscope for displaying and analyzing video signals. The display plots video level vs. time and can display lines, frames or magnified views.

**Widescreen** -- Description of wider-than-normal TV aspect ratio, usually 16:9 but not in some LCD displays (which may be 5:3)

**WMV9** -- Windows Media Video 9, a bit-rate-reduction scheme.

**XLR** -- Generic name for three-pin locking audio connector found on microphones, mixers, other equipment. Can also come in other pin configurations (4 and 5-pin commonly used with intercoms). Also known as Canon connector.

**YRB (Y, R-Y, B-Y)** -- The signals in a color-difference component format. Y is luminance (same as black & white video), R-Y and B-Y are electronically combined versions of Y, R and B signals. YRB is used in all component videotape formats except D1, but the exact signal levels vary between formats. Sync information is usually carried on the Y channel. Similar signal sets go by names such as Y, Cr, Cb; Y, Pr, Pb; YUV; etc.

*Some items borrowed from Mark Schubin's Monday Memo.*