

# GLOSSARY OF MOTION-PICTURE TERMS

## — # —

**1D LUT:** A 1-dimensional lookup table is a static color translation table that converts one input value to one output value. There is a 1-to-1 correspondence in the input and output values in a 1D LUT.

**16 mm:** The frame is one-fourth the size of a 35 mm frame and has a 1.33:1 television aspect ratio. The film can have perforations on both sides or on just one side. When compared to 35 mm, grain is more apparent.

**2K:** A digital image 2048 pixels wide. A standard 2K scan of a full 35 mm film frame is 2048 X 1556 pixels.

**3:2 Pull-down:** The telecine transfer relationship of film frames to video fields. Film shot at 24 fps is transferred to 30 fps NTSC video with an alternating three-field/two-field relationship.

**3D LUT:** A 3-dimensional lookup table is a static color translation table that converts a set of three input color values to another set of three output color values.

**35 mm:** The standard gauge for professional filmmakers, and the standard mainstream film format used for theatrical releases.

**4K:** A digital image 4096 pixels wide. A standard 4K scan of a full 35 mm film frame is 4096 X 3112 pixels.

**65 mm:** The camera film format (size) for wide-screen formats such as IMAX.

**70 mm:** The release print format (size) for wide-screen formats such as IMAX.

## — A —

**A Wind:** When you hold a roll of 16 mm or other single-perf film so that the film leaves the roll from the top and toward the right, the perforations will be along the edge toward the observer.

**Abrasion Marks:** Scratches on film caused by dirt, improper handling, grit, emulsion pileups, and certain types of film damage (e.g., torn perforations).

**Academy Aperture:** In projection, the aperture cutout, designed as specified by the American Academy of Motion Picture Arts and Sciences that provides for a screen-image aspect ratio of approximately 1.37:1; also called "sound aperture."

**Acetate:** Actually cellulose triacetate, the base material frequently used for motion picture films. Also, in sheet form, for overlay cells.

**Acetate-Base Film:** Any film with a support that contains cellulose triacetate; safety film.

**Acquisition:** General term used to describe the input of media for the DI process. All source media during acquisition must be digitized or transferred digitally.

**Additive Color:** Color mixture by adding light from any of the three primaries: red, green, and blue.

**Algorithm:** A procedure to perform a task. Given an initial state, an algorithm will produce a defined end-state. Computer algorithms are used to perform image-processing operations.

**Aliasing:** A digital artifact consisting of patterns or shapes that have no relation in size and orientation with those found in the original image. This is often caused by too low a scan resolution or sampling rate. The best solution is to acquire the image at a sufficient sampling rate or use an anti-aliasing algorithm.

**Analog:** A recording technique (for video or audio) that is continuously variable (as opposed to digital, which is either on or off using 1's and 0's).

**Anamorphic:** An optical system having different magnifications in the horizontal and vertical dimensions of the image. Basically, special camera lenses squeeze the image horizontally at the time of exposure. This 2-to-1 squeeze uses as much of the negative available and still allows room for an optical sound track on the release print. The print is un-squeezed by the projector lens, which gives the characteristic wide screen (2.35:1) aspect ratio.

**ANSI:** American National Standards Institute.

**Answer Print:** The first print (combining picture and sound, if a sound picture), in release form, offered by the laboratory to the producer for acceptance. It is usually studied carefully to determine whether changes are required prior to printing the balance of the order.

**Antihalation Backing (Coating):** A dark layer coated on or in the film to absorb light that would otherwise be reflected back into the emulsion from the base.

**Aperture:** (1) Lens: The orifice, usually an adjustable iris, which limits the amount of light passing through a lens. (2) Camera: In motion picture cameras, the mask opening that defines the area of each frame exposed. (3) Projector: In motion picture projectors, the mask opening that defines the area of each frame projected.

**Artifacts (Digital Artifacts):** Undesirable and unintentional defects in a digital image. Artifacts are often a result of image processing.

**ASA:** Stands for American Standards Association, now International Standards Organization. Exposure Index or speed rating that denotes the film sensitivity. Actually defined only for black-and-white films, but also used in the trade for color films.

**Aspect Ratio:** Proportion of picture width to height. Some common aspect ratios include 1.85:1 (Academy Standard), 2.39:1 (Anamorphic), 1.78:1 (HD), and 1.33:1 (SD).

**Asset Management:** Managing, tracking, and storing data throughout the entire digital intermediate process.

**Average Gradient:** A measure of contrast of a photographic image, representing the slope of a line from two points located on a portion of a characteristic curve. The term that refers to a numerical means for indicating the contrast or the photographic image.

## — B —

**B Wind:** When you hold a roll of 16 mm or other single-perf film so that the film leaves the roll from the top and toward the right; the perforations will be along the edge away from the observer.

**Backing:** Coating: (e.g., anti-abrasion coating, anti-curl, or remjet backing) applied to the base side of the film to improve characteristics and performance.

**Banding:** Smooth graduated colors reduced to larger blocks of color. This produces a visible stepping of shades in the image.

**Base:** The transparent, flexible support, commonly cellulose triacetate (in motion picture cameras), on which photographic emulsions are coated to make photographic film.

**Base Plus Fog:** Density of the film support plus the silver or dye produced by the effects of the developer. Pertains only to an unexposed portion of the film.

**Bell And Howell Perforation (BH):** A film perforation shaped with flat top, flat bottom, and curved sides.

**Bit:** Binary digit, the smallest unit of digital information a computer can work with.

**Bit Depth:** The number of possible color values used in a digital image. A higher bit depth improves the tonality of an image because there are more color values to choose from.

**Bitmap (Raster Image):** A digital image formed by pixels mapped on a grid. Each pixel has its own color or grayscale value.

**Black-And-White Film:** A film that produces a monochromatic picture in shades of gray (usually a metallic silver image).

**Bleach:** (1) Converting a metallic silver image to a halide or other salt that can be removed from the film with hypo. When bleaching is not carried to completion, it is called reducing. (2) Any chemical reagent that can be used for bleaching.

**Blowdown:** Reducing a larger format to a smaller format. An example of blowing down would be going from Super 16 down to 16 mm.

**Blowup:** Occurs when a smaller film format is increased to a larger format. An example would be going from Super 16 up to 35 mm.

## — C —

**CCD (Charged Coupled Device):** A chip with a fixed arrangement of sensors that convert light into electrical current. Each electrical current is in proportion to the amount of light hitting each sensor on the CCD. The electrical current is converted to digital data to create a digital image.

**Calibration:** Sets each device in the post-production pipeline to a specific standard. Calibration ensures all devices acquire, display, and output an accurate image.

**Camera Log:** A record sheet giving details of the scenes photographed on a roll of original negative.

**Camera Original:** Film exposed in a camera.

**Cellulose Triacetate:** Also referred to as “acetate.” A transparent, flexible material used as a base support for photographic emulsions.

**Characteristic Curve:** Shows the relationship between the exposure of a photographic material and the image density produced after processing.

**Check Print:** Used to check the quality of the bulk release work, these are made from the duplicate negative.

**Cinch Marks:** Short scratches on the surface of a motion picture film which run parallel to its length. These are caused by dust or other abrasive particles between film coils or improperly winding the roll, which allows one coil of film to slide against another.

**Cinching:** Practice of pulling the end of a film roll to tighten it. It's not recommended.

**CINEMASCOPE:** Trademark name of a system of anamorphic wide-screen presentation, the first commercially successful anamorphic system for the presentation of wide-screen pictures combined with stereophonic sound. The 35 mm negative camera image is compressed horizontally by 50 percent using a special anamorphic camera lens. Upon projection, the 35 mm print image is expanded horizontally by the same amount using a similar anamorphic projection lens. Depending on the type of sound used in the print, the screen image has an aspect ratio of 2:35:1 (optical sound), or 2:55:1 (4-track magnetic sound).

**Color Analyzer:** A device for determining the correct printing light ratios for printing color negatives.

**Color Balance:** The perceptual appearance of a color image of film as a function of the ratio of exposures of each of the primary color records on the film.

**Color Channel:** An RGB image is comprised of three different color channels: red, green, and blue. Each channel acts as a layer that stores tonal information. All three channels combined create the colors in the digital image.

**Color Correction:** The altering of the color balance by modifying the ratio of the printing light values.

**Color Correction (Digital Color Grading):** Process of adjusting the color and look of images in digital post-production. Digital color correction allows far more control than tradition color timing.

**Color Film:** Carries one or more emulsions, sensitive to different colors, and forming corresponding dye colors during processing.

**Color Internegative:** Negative-image color duplicate made from a positive color original. Typically used for making release prints.

**Color Management:** Use of appropriate hardware, software, and procedures to achieve consistent color throughout the entire digital post-production pipeline.

**Color Negative:** A negative (opposite) record of the original scene. Colors are complementary to the colors in the scene; light areas are dark, and dark areas are light.

**Color Negative Film:** Film that after processing has a color negative image. The most common film used.

**Color Positive:** A positive record of the original scene.

**Color Print Film:** Film designed for making positive prints from color originals and color duplicates.

**Color Reproduction:** Refers to the hue quality of rendered colors. This can include color accuracy (in memory colors or in various flesh tones), color preference, flesh-to-neutral reproduction, and tone-scale neutrality.

**Color Reversal Film:** Film that after processing has a color positive image. Can be an original camera film or a film in which other positive films are printed.

**Color Saturation:** A term used to describe the brilliance or purity of a color. When colors present in a film image are projected at the proper screen brightness and without interference from stray light, the colors that appear bright, deep, rich, and undiluted are “saturated.”

**Color Sensitivity:** Portion of the spectrum to which a film is sensitive. The ability of the eye or photographic stock to respond to various wavelengths of light.

**Color Separation Negative:** Black-and-white negative made from red, green, or blue light from an original subject or from positive color film.

**Color Space:** The range of colors a system is able to reproduce. Digital intermediate work is typically done in the RGB color space.

**Color Temperature:** The color quality expressed in degrees Kelvin (K)—of the light source. The higher the color temperature, the bluer the light; the lower the temperature, the redder the light.

**Color Timing:** A laboratory printing process whereby the negative is graded for color and density. A color timer uses a color analyzer to look at and adjust the colors of every scene in the movie. The analyzer has controls for each of the three primary colors: red, green and blue, and overall density.

**Colorist:** Colorists are artists who work closely with the filmmaker to color correct the film. They help the filmmaker achieve the overall “look” they desire. Using their knowledge of color, they establish continuity between shots and make color decisions that support the story.

**Complementary Color:** Color that is minus one of the primary colors. Cyan is minus red—cyan and red are complementary colors; yellow is minus blue—yellow and blue are complementary colors; magenta is minus green—magenta and green are complementary colors. A color that produces white when mixed in equal parts with the primary color to which it is complementary.

**Composite Print:** A print of a film that contains both picture and sound track. Films regularly shown in theaters are composite prints. Also called Release Print.

**Composition:** The distribution, balance, and general relationship of masses and degrees of light and shade, line, and color within a picture area.

**Compression:** Algorithms that discard or reorganize information to reduce file size. Compression reduces the amount of storage space and bandwidth needed for images in the digital intermediate.

**Conform:** Match the original film to the final edited work print.

**Conforming (Auto-conforming):** Matching the digital intermediate to the final edit. Special conforming software is used to auto conform the digital intermediate by using an edit decision list or a film cut list provided by the editor.

**Contact Print:** Print made by exposing the receiving material in contact with the original. Images are the same size as the original images, but have a reversed left-to-right orientation.

**Continuous Contact Printer:** A printing machine where the emulsion of the negative film is in direct physical contact with the positive raw stock emulsion, and the two films are moving continuously across the printing aperture.

**Contrast:** (1) The general term for describing the tone separation in a print in relation to a given difference in the light-and-shade of the negative or subject from which it was made. Thus, "contrast" is the general term for the property called "gamma" ( $\gamma$ ), which is measured by making an H & D Curve for the process under study. (2) The range of tones in a photographic negative or positive expressed as the ratio of the extreme opacities or transparencies or as the difference between the extreme densities. This range is more properly described as "scale" or "latitude." (3) The ability of a photographic material, developer, or process as a whole to differentiate among small graduations in the tones of the subject.

**Control Strip:** A short length of film containing a series of densities to check on laboratory procedures.

**Cross Process:** Shooting color reversal film but processing as a color negative film, resulting in an "alternate" look.

**Curl:** A defect of a photographic film consisting of unflatness in a plane cutting across the width of the film. Curl may result from improper drying conditions, and the direction and amount of curl may vary with the humidity of the air to which the film is exposed.

**Curve (H&D):** The characteristic curve developed by Hurter and Driffield that depicts how faithfully a photographic emulsion has reproduced the tonal scale of the original scene.

**Cyan:** Blue-green; the complement of red or the minus-red subtractive used in three-color processes.

## — D —

**D-Log E:** (Density vs. the log of Exposure) The graph made by plotting the density of a film sample against the log of the exposure that made that density. Also known as D-Log H, H and D, and characteristic curve. D-Log H (H for exposure) is the technically correct term.

**D Log H Curve:** The curve showing the relation between the logarithm of the exposure and the resultant density on processed film. Also called the characteristic curve.

**D-Max:** See Maximum Density.

**D-Min:** See Minimum Density.

**Dailies:** Picture and sound work prints of a day's shooting; usually an untimed one-light print made without regard to color balance. Produced so that the action can be checked and the best takes selected; usually shown before the next day's shooting begins.

**Daylight:** Light consisting of a natural combination of sunlight and skylight (approximately 5500 degrees K).

**Definition:** The clarity or distinctness with which detail of an image is rendered. Fidelity of reproduction of sound or image.

**Densitometer:** Instrument used to measure the optical density of an area in a processed image by transmittance (for films) or by reflectance (for photographic prints).

**Densitometry:** Science of measuring the light-stopping characteristics of film or filters.

**Density:** Light-stopping characteristics of a film or a filter. The negative logarithm to the base ten of the transmittance (or reflectance) of a sample.

**Depth of field:** The distance range between the nearest and farthest objects that appear in acceptably sharp focus. Depth of field depends on the lens opening, the focal length of the lens, and the distance from the lens to the subject.

**Development:** Process of making a visible film image from the latent image produced during exposure.

**Developer:** A solution used to turn the latent image into a visible image on exposed films.

**Diffuse RMS Granularity:** The objective measurement of grain.

**Digital:** A system whereby a continuously variable (analog) signal is broken down and encoded into discrete binary bits that represent a mathematical model of the original signal.

**Digital Cinema Distribution Master (DCDM):** Digital content that conforms to specifications set by the Digital Cinema Initiatives (DCI). The DCDM is a set of digital files that include images, audio, subtitles and other auxiliary data.

**Digital Intermediate:** A project in its digital state between input and final output. The digital intermediate goes through many different processes such as digital retouching, digital color grading, integration of visual effects and titling. Therefore, the term “digital intermediate” refers to the digital data’s transitional nature—a state between the input stage and final delivery.

**Digital Master:** Final digital version with all changes in the image processing stage applied. It is used to create all distribution formats, including film, digital cinema, HD, SD, and DVD.

**Digital Paint:** Software tools and techniques to fix imperfections in digital images.

**Digitization (Digitize):** Process of sampling and converting a continuously variable (analog) signal into discrete mathematical representation of that signal.

**Dissolve:** An optical or camera effect in which one scene gradually fades out at the same time that a second scene fades in. There is an apparent double exposure during the center portion of a dissolve sequence where the two scenes overlap.

**Double-System Sound Recording:** Includes a film camera and a separate device, such as a DAT, for audio. For accuracy, the camera should be synced with the sound device and the frame rate should be a constant 24 frames per second. Sound is later transferred to magnetic film and synchronized with picture in postproduction.

**Downrezzing (Downsampling):** Resizing a digital image to a smaller size.

**DPX (Digital Picture Exchange) File:** The most common file format used in digital post-production. The DPX format is an ANSI and SMPTE standard. The format provides a great deal of flexibility because it is easy to share between workstations, equipment, and facilities.

**Dupe, Dupe Negative:** A second generation internegative made from a master positive by printing and development or from an original negative by printing followed by reversal development.

**Dust-Busting:** Removal of visible dust and scratches after film has been digitized.

**Dynamic Range:** The range of values between the darkest and brightest perceptible points in an image.

**Dye:** In photography, the result of color processing in which the silver grains or incorporated color couplers have been converted into the appropriate dye to form part of the color image.

— E —

**ECN-2:** Process for color negative films.

**ECP-2:** Process for color print films.

**Edge Numbers:** Numbers on edges of film that identify the film; used to help match original film and sound to edited workprints. Latent-image edge numbers are put on by the manufacturer, and appear during development. Printed edge numbers are placed on the film by the lab, and can be coded for all materials so that any number of picture and sound rolls will have the same sequence. See also KEYKODE.

**Edgewax:** Waxing method recommended for lubricating release prints; treatment is with a solution of 50 grams of paraffin wax per litre of trichloromethane applied only to the edges of the emulsion side of the film.

**EDL (Edit Decision List):** List of edits prepared on a non-linear editor in timecode.

**Emulsion, Emulsion Layer:** (1) Broadly, any light-sensitive photographic material consisting of a gelatin emulsion containing silver halides together with the base and any other layers or ingredients that may be required to produce a film having desirable mechanical and photographic properties. (2) In discussions of the anatomy of a photographic film, the emulsion layer is any coating that contains light sensitive silver halide grains, as distinguished from the backing, base, substratum, or filter layers.

**Emulsion Number:** A number identifying a complete coating from a single emulsion batch or mixture.

**Emulsion Side:** The side of a film coated with emulsion.

**Emulsion Speed:** The photosensitivity of a film, usually expressed as an index number based on the film manufacturer's recommendations for the use of the film under typical conditions of exposure and development.

**ESTAR Base:** The trademark name applied to the polyethylene terephthalate film base manufactured by Eastman Kodak Company.

**Exposure:** Amount of light that acts on a photographic material; product of illumination intensity (controlled by the lens opening) and duration (controlled by the shutter opening and the frame rate).

**Exposure Index (EI):** Number assigned to a film that expresses its relative sensitivity to light. The EI is based on the film emulsion speed, a standard exposure technique, and specific processing solutions.

**Exposure Latitude:** Degree to which film can be underexposed or overexposed and still yield satisfactory results.

**Exposure Meter, Incident:** A meter calibrated to read and integrate all the light aimed at and falling on a subject within a large area. (Scale may be calibrated in footcandles or in photographic exposure settings.)

**Exposure Meter, Reflectance:** A meter calibrated to read the amount of light, within a more restricted area, reflecting from the surface of a subject or an overall scene. (Scale may be calibrated in footcandles or in photographic exposure settings.)

**Exposure Setting:** The lens opening selected to expose the film.



## — F —

**f-Number:** A symbol that expresses the relative aperture of a lens or f/stop. For example, a lens having a relative aperture of 1.7 would be marked f/1.7. The smaller the f-number, the more light the lens transmits.

**Fast:** (1) Having a high photographic speed. The term may be applied to a photographic process as a whole, or it may refer to any element in the process, such as the optical system, emulsion, developer. (2) Resistant to the action of destructive agents. For example, a dye image may be fast to light, fast to heat, or fast to diffusion.

**Ferrotyping:** Shiny blotches on the surface of processed film; caused by heat and/or moisture combined with pressure.

**Film Base:** Flexible, usually transparent, support on which photographic emulsions are coated.

**Film Code:** (or product code) is the four-digit number that the film manufacturer assigns to every film product, e.g., 5201.

**Film Cut List:** List containing KEYCODE Numbers that communicates what frames from the original negative should be included in the conformed negative (traditional) or digital intermediate (digital post).

**Film Gate:** Components that make up the pressure and aperture plates in a camera, printer, or projector.

**Film Identification Code:** Letter which identifies film type.

**Film Perforation:** Holes punched at regular intervals for the length of film, intended to be engaged by pins, pegs, and sprockets as the film is transported through the camera, projector, or other equipment.

**Film Sensitivity:** The ability of a photographic emulsion to form a latent image when exposed to light.

**Film Speed:** See Emulsion Speed.

**Final Cut:** Last editing of a workprint before conforming is done or before sound workprints are mixed.

**Fine Grain:** Emulsion in which silver particles are very small.

**First Print:** The first trial composite (married) print containing both picture and sound for the purpose of checking picture and sound quality.

**Fixing:** The removal of unexposed silver halides from the film during processing.

**Flashing:** Technique for lowering contrast by giving a slight uniform exposure to film before processing.

**Flat:** An image is said to be "flat" if its contrast is low. Flatness is a defect that does not necessarily affect the entire density scale of a reproduction to the same degree. Thus, a picture may be "flat" in the highlight areas, "flat" in the shadow regions, or both.

**Flesh-to-Neutral Reproduction:** A function of a film's tone-scale neutrality and linearity and its color reproduction. A good performer will offer a neutral tone scale from black to white when flesh tones are balanced to an accurate or preferred position, and vice versa—when flesh tones look reasonable when the film's gray scale is balanced to neutral.

**Focal Length:** The distance from the optical center of a lens to the point at which parallel rays of light passing through it converge (the focal point).

**Fog:** Darkening or discoloring of a negative or print, or lightening or discoloring of a reversal material. Causes include accidental exposure to light or x-rays, overdevelopment, using outdated film, and storing film in a hot, humid place.

**Footage Numbers:** Also called edge numbers or KEYCODE. Sequential numbers which are pre-exposed or printed in ink at regular intervals on the edge of the film outside or in between the perforations.

**Force-Process:** Develop film for longer than the normal time to compensate for underexposure. More commonly called "push process."

**Format:** The size or aspect ratio of a motion picture frame.

**FPM:** Feet Per Minute, expressing the speed of film moving through a mechanism.

**FPS:** Frames Per Second, indicating the number of images exposed per second.

**Frame (film):** The individual picture image on a strip of motion picture film.

**Frame (video):** A complete television picture made up of two fields, produced at the rate of approximately 29.97 Hz (color), or 30 Hz (black & white).

**Frame Counter:** An indicator that shows the exact number of frames exposed.

**Frame Line Marking:** A mark placed on the edge of the film between every fourth perforation as an aid to splicing in frame when no image or frame line is visible. On 70 mm film, a small punched hole placed between every fifth perforation.

**Frame-Index Marker:** (35 mm only) Hyphen that occurs every four perforations to help locate position of frame line, especially in low-light level scenes. To use: Locate frame line. Determine whether it is offset from index marker by 0, +1, +2, or +3 perforations. Use this offset to find frame line elsewhere in scene. Note: The frame-index marker is not printed when it interferes with any other edgeprint information.

**Frame Rate:** See FPS.

**Front End:** General terms for all production and preparation work up to the Answer Print stage before Release Printing.

## — G —

**Gamma:** Measurement of the contrast of an image, representing the slope of the straight-line portion of the characteristic curve.

**Gate:** The aperture assembly at which the film is exposed in a camera, printer, or projector.

**Gelatin Filter (Gel):** A light filter consisting of a gelatin sheet in which light-absorbing pigment or dye is incorporated.

**Gobo:** A patterned template used in lighting to create a pattern or texture in a scene. Placed between the light and the subject, a gobo can add mood, dimension, or the illusion of motion.

**Grain Reduction:** Digital algorithms used to reduce the amount of undesirable grain in a sequence of images.

**Graininess:** The character of a photographic image when, under normal viewing conditions, it appears to be made up of distinguishable particles, or grains. This is due to the grouping together, or “clumping” of the individual silver grains, which are by themselves far too small to be perceived under normal viewing conditions.

**Granularity:** Nonuniformity in a photographic image that can be measured with a microdensitometer.

**Gray Card:** A commercially prepared card that reflects 18 percent of the light hitting it. Visually it appears neutral, or a middle gray halfway between black and white.

**Grayscale:** A black and white image.

**Gross Fog:** The density of the base of the film plus the density of the fog in the emulsion. Also known as D-min and base + fog.

**Guillotine Splicer:** Device used for butt-splicing film with splicing tape.

## — H —

**H&D Curve:** The graph made by plotting the density of a film sample against the log of the exposure that made that density.

**Halation:** A defect of photographic films and plates. Light forming an image on the film is scattered by passing through the emulsion or by reflection at the emulsion or base surfaces. This scattered light causes a local fog that is especially noticeable around image of light sources or sharply defined highlight areas.

**Hard:** (1) As applied to a photographic emulsion or developer, having a high contrast. (2) As applied to the lighting of a set, specular or harsh, giving sharp dense shadows and glaring highlight.

**HD:** High definition video image or format.

**HDTV:** High Definition Television, a recently developed video format with a resolution approximately twice that of standard television.

**High-Speed Camera:** A camera designed to expose film at rates faster than 24 frames per second. Used to obtain slow-motion effects.

**Highlights:** Visually the brightest, or photometrically the most luminant, areas of a subject. In the negative image, the areas of greatest density; in the positive image, the areas of least density.

**Highlight Detail:** Almost entirely a function of shoulder contrast and overexposure latitude.

**Hue:** Sensation of the color itself, measured by the dominant wavelength.

**Humidity:** A term referring to the presence or absence of moisture in the air. For instance, low humidity describes conditions in a desert. Conversely, high humidity is related to tropical rain forest conditions.

**Hyperfocal Distance:** The closest focus distance at which both objects at infinity and closer objects are in focus.

## — I —

**Idle Roller:** Free turning non-sprocketed rollers for guiding film through its appropriate path.

**Illuminant:** Light source used to project the film image or to expose the film.

**Image, Latent Image:** The invisible image formed in a camera or printer by the action of light on a photographic emulsion.

**Image Orientation:** Laboratory function that assures that the projected image is properly formed on the screen, and that the sound track is on the appropriate side of the film.

**Image Processing Stage:** Stage in the DI process where the digital intermediate files are manipulated and altered digitally. Operations such as conforming, color correction, creation of special looks, and addition of special effects are all performed digitally in the image processing stage.

**Image Sensors:** High-end video is limited to a fixed arrangement of sensors on the charge coupled device, or CCD.

**IMAX:** A widescreen format that originates on 65 mm film. Trademark of IMAX Corporation, the term applies more to “The IMAX Experience”—big film, special theatres, and surround sound.

**Incident Meter:** A light meter designed to measure light falling onto the subject.

**Infrared:** Nonvisible radiation from the long wavelength portion of the electromagnetic spectrum.

**Input (Stage):** Acquisition and transfer of all analog and digital media into the DI pipeline.

**Intercutability:** Can mean different things to different cinematographers. At the very least, it encompasses how well a group of films match one another for color reproduction, color saturation, contrast, tone-scale neutrality, flesh-to-neutral, and latitude. Chemically, there are also provisions made for how well dye sets match between films. If two films offer significant differences from one another in any of the above categories (different contrasts for example), they may still be considered artistically compatible or complementary, but not necessarily intercuttable.

**Intermediate:** Film used only for making duplicates from which other duplicates or prints are made. Does not include camera films.

**Intermittent:** Not continuous but equally spaced (sometimes random) motion, as the intermittent (24 fps) motion of film through a projector.

**Internegative (IN):** A negative copy made from the interpositive. The Integative, also known as, a dupe negative (DN) can be printed with one-light (one set of timing lights) since all color corrections were made in the interpositive (IP). This facilitates high speed printing for theatrical releases.

**Interpositive (IP):** The original cut negative for a feature film is printed onto intermediate stock to create a color interpositive (or master positive). The same color timing for making the answer print is used here. With the IP in hand, an Integative (IN or DN) is made which becomes the printing master or dupe negative (DN) for making multiple release prints.

**Iris:** See Aperture.

**ISO:** International Standards Organization. The international version of ANSI.

— J —

— K —

**Kelvin:** Unit of measure in color temperature (e.g., 6500K for daylight).

**Key Numbers:** See Edge Numbers.

**KEYCODE:** Technically, KEYCODE refers to the machine readable bar code next to the edge numbers that the manufacturer placed on the film. Over time it has become synonymous with edge numbers or footage numbers.

**Kodak Standard Perforations (KS):** Compared to BH perforations, larger in size, and with rounded corners for extra strength. Used primarily for release prints.

— L —

**Laboratory:** A facility that specializes in processing and printing film, sometimes offering additional services such as editing and film storage.

**Laboratory Film:** Film products, not intended for original photography, but necessary to complete the production process.

**Latent Image:** Invisible image in exposed, undeveloped film; results from exposure to light.

**Latent Image Edge Numbering:** Images placed on the edge of film products in manufacturing that become visible after development.

**Latitude:** In a photographic process, the range of exposure over which substantially correct reproduction is obtained. When the process is represented by an H & D curve, the latitude is the projection on the exposure axis of that part of the curve that approximates a straight line within the tolerance permitted for the purpose at hand.

**Leader:** Any film or strip of material used for threading a motion picture machine. Leader may consist of short lengths of blank film attached to the ends of a print to protect the print from damage during the threading of a projector, or it may be a long length of any kind of film which is used to establish the film path in a processing machine before the use of the machine for processing film.

**Lens:** A collection of glass elements that transmit and focus light to form an image.

**Letterbox:** A standard television display technique seen in many commercials and music videos. A black band on the top and bottom of the screen is used to maintain a widescreen look and preserve the original composition on a standard television screen.

**Light Filter:** A light-absorbing transparent sheet, commonly consisting of colored glass or dyed gelatin that is placed in an optical system to control the spectral quality, color, or intensity of the light passing a given plane.

**Light Intensity:** Degree of light, per unit, falling on a subject; usually expressed in footcandles.

**Light Meter:** An electrical exposure meter for measuring light intensity.

**Light Piping:** Fog caused by light striking the edge of film and traveling along the base to expose the emulsion inside the magazine or roll.

**Lighting Ratio:** The ratio of the intensity of key and fill lights to fill light alone.

**Linear Editing:** Uses a tape-to-tape method where the film is edited in the order in which it will be viewed.

**Local Area Network (LAN):** Network that spans a relatively small area, such as a single DI facility. It can consist of any number of computer stations and devices that are directly connected together. Every computer can access every other computer's data and any other devices inside the LAN.

**Logarithmic (Encoding):** Process of encoding tonal information by using a logarithmic mathematical formula. The result ends up assigning more bits of information to the darker areas of the image. This closely matches the sensitivity of the human eye, which is more discerning of the blacks and shadows of an image. It requires 10 bits to capture the complete tonal range of film logarithmically.

**Long Pitch:** Perforation type used on print films; slightly greater than perforations on original films to prevent slippage during printing.

**Look Management:** Software-based tools that help establish and manage the look of a production throughout the entire filmmaking process.

**Look Up Table (LUT):** Color translation table that links a set of input color values to a set of output color values. Look up tables speed up post-production processes and provide feedback in real time. Look tables are often used to implement calibration corrections, color corrections, specific looks, and color space conversions.

**Loop (projector or camera):** The path in which the film is formed to allow the film to travel intermittently through the gate.

**Lossless Compression:** Compression algorithm that reorganizes data in a more effective way to reduce file size. There is no loss of image information.

**Lossy Compression:** Compression algorithm that discards data considered imperceptible in order to reduce file size. Lossy compression is destructive to the original image data.

**Low Key:** A scene is reproduced in a low key if the tone range of the reproduction is largely in the low-density portion of the scene. Typically the subject is the brightest part of the image.

**Luminance:** The measured value of brightness; reflected light measure on motion picture screens as footlamberts or candelas per square meter.

**Lux:** Lumens per square meter. A metric measure of illuminance equal to 0.0929 footcandles (1 footcandle = 10.764 lux).

## — M —

**Magazine Take-Up:** In the United Kingdom it is known as a spool box. It is the device, which winds up the film after photography (in a camera), copying (in a printer), and after projection (in projection).

**Magenta:** Purplish color; complementary to green or the minus-green subtractive primary used in the three-color process. Magenta light results when red and blue light overlap.

**Manufacturer Identification Code:** The letter that identifies film manufacturer. K = EASTMAN KODAK COMPANY.

**Manufacturers Information:** Includes information such as Year Code, Printer Number, Roll and Part Number, Emulsion Number, Product Code, Film Manufacturer.

**Masking:** Restricting the size of a projected image on a screen by the use of black borders around the screen. Also the restriction in size of any projected image or photographic print by the use of undercut aperture plates or masks and borders.

**Master Positive (same as Interpositive):** Timed interpositive made from a negative original and from which a duplicate negative is made.

**Matte:** An opaque outline that limits the exposed area of a picture, either a cut out object in front of the camera or as a silhouette on another strip of film.

**Maximum Density (D-Max):** Portion of the shoulder of the characteristic curve where further increases in exposure on negative film or decreases in exposure on reversal film will produce no increase in density.

**Metadata:** Additional data about a file or how it should be processed.

**Midtones:** The colors between black and white that occur on the straight-line portion of the characteristic curve.

**Minimum Density (D-Min):** Constant-density area in the tone of the characteristic curve where less exposure on negative film or more exposure on reversal film will produce no reduction in density. Sometimes called base plus fog in black-and-white film.

**Modulation Transfer Function Curve:** Indicates the ability of a film to record fine detail. The curve results when light transmission is measured with lines that are successively more closely spaced.

## — N —

**Nanometer:** The unit of measure for a wavelength of light. One billionth of a meter.

**Naturalism:** A type of lighting that follows natural (realistic) patterns and angles.

**Negative:** The term "negative" is used to designate any of the following (in either black-and-white or color): (1) The raw stock specifically designed for negative images. (2) the negative image. (3) Negative raw stock that has been exposed but has not been processed. (4) Processed film bearing a negative image.

**Negative Cutting:** Process of cutting and splicing the original negative to match the final edited film.

**Negative Film:** Produces a negative image (black is white, white is black, and colors appear as complementaries).

**Negative Image:** A photographic image in which the values of light and shade of the original photographed subject are represented in inverse order. Note: In a negative image, light objects of the original subject are represented by high densities and dark objects are represented by low densities. In a color negative, colors are represented by their complementary color.

**Negative-Positive Process:** Photographic process in which a positive image is obtained by development of a latent image made by printing a negative.

**Negative Timing (Negative Grading):** The selection of the appropriate color correction (timing lights) for the printing process.

**Negative Perforations:** A generic term for the Bell and Howell perforation.

**Network:** An interconnected system of computers and storage devices. Computers in a network are able to work together to perform processes and share data.

**Neutral-Density Filters:** Used over the camera lens to reduce the intensity of light reaching the film without affecting the scene's color balance.

**Newton's Rings:** Fuzzy, faintly colored lines in the projected image caused by high or uneven printer gate pressure.

**Nitrate Film:** A highly flammable motion picture film that has not been domestically manufactured since around 1950. It is still present in large quantities in storage vaults and archives and must be very carefully stored to prevent explosions.

**Noise:** Random errors and fluctuations in an image. Noise can be distracting across a sequence of frames.

**Non-Linear Editing:** (1) Flexible form of editing where shots can be edited in a manner that do not conform to, or affect, the planned story order. (2) Editing of video and audio on a computer.

**NTSC:** National Television Standards Committee. The television broadcast system used in North America. Not compatible with PAL.

## — O —

**OMNIMAX:** a widescreen format, shot on 65 mm film and projected onto specialized large, dome-shaped screens. A trademark of IMAX Corporation (see IMAX).

**One-To-One Printing:** Optical printing of the images which are reproduced to the same size.

**Optical Effects:** Trick shots prepared by the use of an optical printer in the laboratory, especially fades and dissolves.

**Optical Printer:** Used when image size of the print film is different from the image size of the pre-print film. Also used when titles or effects (such as skip frames, blow-ups, zooms, and mattes) are included.

**Original:** An initial photographic image, or sound recording—whether photographic or magnetic—as opposed to some stage of duplication thereof.

**Original Camera Negative:** The negative originally exposed in a camera.

**Orthochromatic (Ortho) Film:** Film that is sensitive to only blue and green light.

**Out-Take:** A take of a scene, which is not used for printing or final assembly in editing.

**Output Stage:** The last stage of the digital intermediate process. Typically the files in the digital intermediate are used to render a digital master. The digital master is recorded out to film and to create a variety of electronic formats.



**Overcoat:** A thin layer of clear or dyed gelatin sometimes applied on top of the emulsion surface of a film to act as a filter layer or to protect the emulsion from abrasion during exposure, processing and projection.

**Overexposure:** A condition in which too much light reaches the film, producing a dense negative or a washed-out reversal.

## — P —

**PAL:** Phase Alternating Line. The television broadcast system used in Europe, Asia, and much of Africa. Not compatible with NTSC.

**Pan and Scan:** Technique used when transferring wide screen films to the standard 1.33:1 television aspect ratio. After the height of the film frame is maximized, the telecine operator pans back and forth selecting the best part of the film frame for each scene.

**PANAVISION 35:** A 35 mm process using 35 mm negative film and photographed through a Panavision anamorphic lens with a compression of 2X. Contact 35 mm prints are compatible with anamorphic systems such as CINEMASCOPE.

**Panchromatic (Pan) Film:** Black-and-white film that is sensitive to all colors in tones of about the same relative brightness as the human sees in the original scene. Film sensitive to all visible wavelengths.

**Peak Density:** Wavelength of maximum absorption.

**Perforation Damage:** On inspection the perforations through a magnifying glass you will find damage progressing from cracked, chipped or elongated holes to torn holes.

**Perforations:** Regularly spaced and accurately shaped holed which are punched throughout the length of a motion picture film. These holes engage the teeth of various sprockets and pins by which the film is advanced and positioned as it travels through cameras, processing machines, and projectors.

**Pictorialism:** A lighting method that violates natural angles for artistic effect.

**Pitch:** (1) That property of sound which is determined by the frequency of the sound waves. (2) Distance from the center of one perforation on a film to the next; or from one thread of a screw to the next; or from one curve of a spiral to the next.

**Pixel (picture element):** A pixel is the smallest unit of a bitmap image. Digital images are made up of square pixels arranged in a fixed grid. Each pixel is assigned a specific color value.

**Polyester:** A name for polyethylene terephthalate developed by E.I. Dupont de Nemours & Co. (Inc.). A film base material exhibiting superior strength and tear characteristics. CRONAR is the trademark name used by DUPONT; ESTAR Base is the trademark name used by Eastman Kodak Company.

**Positive Film:** Motion picture film designed and used primarily for the making of master positives or release prints.

**Positive Image:** A photographic replica in which the values of light and shade of the original photographed subject are represented in their natural order. The light objects of the original subject are represented by low densities and the dark objects are represented by high densities.

**Post-Production:** The work done on a film once photography has been completed, such as editing, developing and printing, looping, etc.

**Primary Color:** One of the light colors, e.g., blue, red, or green, that can be mixed to form almost any color.

**Primary Color Correction:** Primary color correction is completed first and sets the overall color balance and look of the image. It ensures that all scenes have a consistent color tone, with no sudden shifts in hue or brightness.

**Print Film:** Film designed to carry positive images and sound tracks for projection.

**Processing:** Procedure during which exposed film is developed, fixed, and washed to produce either a negative or a positive image.

**Product Code:** See Film Code.

**Production:** The general term used to describe the process involved in making all the original material that is the basis for the finished motion picture.

**Projection:** Presenting a film by optical means and transmitting light for either visual or aural review, or both.

**Projection Speed:** The rate at which the film moves through the projector; twenty-four frames per second is the standard for all sound films.

**Protection Master:** A master positive (MP) from which a dupe negative can be made if the original is damaged.

**Pull-Down Claw:** The metallic finger, which advances the film one frame between exposure cycles.

**Pull Process:** Using a reduced development time to compensate for overexposure, either intentional for effect or accidental.

**Push Process:** Using an extended development time to compensate for underexposure, either intentional for effect or accidental.

— Q —

— R —

**Raw Stock:** Unexposed and unprocessed motion picture film; includes camera original, laboratory intermediate, duplicating, and release-print stocks.

**Reciprocity Law:** Expressed by  $(H)=Et$ , where E is the light intensity, and T is time. When E or T are varied to the extreme, an unsatisfactory exposure can result.

**Reduction Printing:** See Blowdown. Making a copy of a film original on smaller format raw stock by optical printing; for example, printing a 35 mm original onto 16 mm stock.

**Refraction:** The change of direction (deflection) of a light ray or energy wave from a straight line as it passes obliquely from one medium (such as air) to another (such as glass) in which its velocity is different.

**Release Negative:** Duplicate negative or color reversal intermediate from which release prints are made.

**Release Print:** In a motion picture processing laboratory, any of numerous duplicate prints of a subject made for general theatre distribution.

**Remjet Backing:** Antihalation backing used on certain films. Remjet is softened and removed at the start of processing.

**Resolution:** The spatial detail of an image. For digital images, the number of pixels the image contains defines its resolution. Higher resolution images are sharper, smoother, and contain more image detail, but are also larger in file size.

**Resolving Power:** Ability of a photographic emulsion or an optical system to reproduce fine detail in the film image and on the screen.

**Reversal Film:** Film that processes to a positive image after exposure in a camera, or in a printer to produce another positive film.

**Reversal Process:** Any photographic process in which an image is produced by secondary development of the silver halide grains that remain after the latent image has been changed to silver by primary development and destroyed by a chemical bleach. In the case of film exposed in a camera, the first developer changes the latent image to a negative silver image. This is destroyed by a bleach and the remaining silver halides are converted to a positive image by a second developer. The bleached silver and any traces of halides may now be removed with hypo.

**Rewind:** An automatic console or set of bench-mounted spindles used to wind film from reel-to-reel.

**Rewinding:** The process of winding the film from the take-up reel to the supply reel so that the head end, or start of the reel, is on the outside. If there are no identifying leaders on the film, upside-down images will signify the head end.

**RGB:** A color model that combines red, green, and blue light in various intensities. Digital intermediate work is typically done in the RGB color space. It is the most common way of viewing and working with digital images on a computer screen.

**RMS:** Root-Mean-Square. This mathematical term is used to characterize deviations from a mean value. The term "standard deviation", which is synonymous, is also used.

**RMS Granularity:** Standard deviation of random-density fluctuations for a particular film.

**Roll Number:** This is the two-digit number that is assigned by the film manufacturer to each 6,000 ft roll.

**Rough Cut:** Preliminary stage in film editing, in which shots, scenes, and sequences are laid out in an approximate relationship, without detailed attention to the individual cutting points.

## — S —

**Safety Film:** A photographic film whose base is fire resistant or slow burning as defined by ANSI and various fire codes. At the present time, the terms "safety base film," "acetate base film" and "polyester base film" are synonymous with "safety film."

**Sampling Rate:** The frequency at which an analog signal is measured and converted to a digital data.

**Saturation:** Term used to describe color brilliance or purity. When color film images are projected at the proper brightness and without interference from stray light, colors that appear bright, deep, rich, and undiluted are said to be “saturated.”

**Scan Resolution:** The number of pixels acquired from the original camera negative. Film scanning has three popular resolutions: Full (4K), Half (2K), and Quarter (1K).

**Scanner (Film Scanner):** A device used to digitize film images. Each film frames yields a separate digital image file.

**Scene:** A segment of a film that depicts a single situation or incident.

**SD:** Standard definition video.

**Secondary Color Correction:** Selection and manipulation of specific portions of the color spectrum or objects without affecting the overall color balance of the scene.

**Sensitivity:** Degree of responsiveness of a film to light.

**Sensitometer:** An instrument with which a photographic emulsion is given a graduated series of exposures to light of controlled spectral quality, intensity, and duration. Depending upon whether the exposures vary in brightness or duration, the instrument may be called an intensity scale or a time scale sensitometer.

**Sensitometric Curve:** See Characteristic Curve.

**Sensitometry:** Study of the response of photographic emulsions to light.

**Separation Masters:** Three separate black and white master positives made from one color negative; one contains the red record, another the green record, and the third the blue record.

**Shadow Detail:** A combination of three other image attributes, toe speed, black-level speed, and low toe contrast. An improvement in any of the attributes should lead to an improvement in shadow detail; though it can be difficult to describe shadow detail when a film has an advantage in one of the categories but a disadvantage in others.

**Sharpness:** Visual sensation of the abruptness of an edge. Clarity.

**Short Pitch (see Perforation Pitch):** The perforation pitch of a negative stock, which is somewhat shorter than the pitch of positive stock to avoid slippage in contact printing.

**Shoulder:** High-density portion of a characteristic curve in which the slope changes with constant changes in exposure. For negative films, slope decreases and further changes in exposure (log H) finally produce no increase in density because maximum density has been reached. For reversal films, slope increases.

**Shutter:** In theatrical projection, a two-bladed rotating device used to interrupt the light source while the film is being pulled down into the projector gate. One blade masks the pull-down while the other blade causes an additional light interruption increasing the flicker frequency to 48 cycles per second—a level that is not objectionable to the viewer at the recommended screen brightness of 16 footlamberts (55 candelas per square meter). In a camera, a rotating disk with a section removed.

**Silver Halides:** Light-sensitive compound used in film emulsions.

**Single-Perforation Film:** Film with perforations along one edge only.

**Slow Motion:** The process of photographing a subject at a faster frame rate than used in projection to expand the time element.

**SMPTE:** Acronym for the Society of Motion Picture and Television Engineers.

**Soft:** (1) As applied to a photographic emulsion or developer, having a low contrast. (2) As applied to the lighting of a set, diffuse, giving a flat scene in which the brightness difference between highlights and shadows is small.

**Sound Negative:** The negative record of photographic sound recording.

**Sound Positive:** A positive print of the photographic sound recording film.

**Sourcey:** The tendency for a light source to be perceived as being artificial. This artificiality is a function of the light appearing too bright or too extreme on the subject and then dropping off in intensity very quickly.

**Special-Dye-Density Curve:** A graph of 1) the total density of the three dye layers measured as a function of wavelengths, and 2) of the visual neutral densities of the combined layers similarly measured.

**Spectral Sensitivity:** The relative sensitivity of a particular emulsion to specific bands of the spectrum within the film's sensitivity range. Sometimes confused with Color Sensitivity.

**Spectrum:** Range of radiant energy within which the visible spectrum—with wavelengths from 400 to 700 nm—exists.

**Speed:** Can be characterized in terms of absolute film sensitivity or in terms of reproduced image blacks. Absolute sensitivity is simply a measure of what level of light (exposure) begins to produce the first density signal in the film – this is known as toe speed. The toe speed of a film can also be interpreted by a cinematographer as underexposure latitude or shadow detail.

The blackness of a positive image D-max can also be used to define speed. Most cinematographers would describe a film with smokier blacks as slower than a film with blacker blacks given both were exposed similarly. Black level also relates to a cinematographer's perception of shadow detail.

**Speed Point:** A point that corresponds to the exposure required to produce a specific optical density, usually 0.1 above base + fog.

**Splice:** Any type of cement or mechanical fastening by which two separate lengths of film are united end to end so they function as a single piece of film when passing through a camera, film processing machine, or projector.

**Spot Meter:** A light meter designed to measure light reflected from the subject.

**Sprocket:** A toothed wheel used to transport perforated motion picture film.

**Static Electricity:** Electric field that is present primarily due to the presence of electrical charges on materials.

**Step:** An exposure increase or decrease, usually by a factor of 2. The same as "Stop", except stop specifically refers to lens aperture. A patch of a step tablet used for sensitometer exposures, as in "21-step tablet."

**Step-Contact Printer:** Contact printer in which the film being copied and the raw stock are advanced intermittently by frame. Exposure occurs only when both are stationary.

**Stock:** General term for motion picture film, particularly before exposure.

**Stop Down:** To decrease the diameter of the light-admitting orifice of a lens by adjustment of an iris diaphragm.

**Stop Motion:** An animation method whereby apparent motion of objects is obtained on the film by exposing single frames and moving the object to simulate continuous motion.

**Storage Area Network (SAN):** A high-speed network that connects computer storage devices, such as hard drives and tape libraries, to servers. A SAN allows multiple computers to access a centralized pool of storage. Files can be shared, copied, or moved quickly and efficiently on a SAN.

**Straight-Line Region:** Portion of characteristic curve where slope does not change because the rate of density for a given log exposure change is constant or linear.

**Subbing Layer:** Adhesive layer that binds film emulsion to the base.

**Subtractive Color:** Cyan, magenta and yellow, the subtractive primaries used by film to reproduce color.

**Subtractive Lighting:** This technique is typically used when shooting exteriors in available light. By using large flags, butterflies, or overheads, light is removed from the subject in order to increase the lighting ratio. It is sometimes referred to as "Negative Fill."

**Subtractive Process:** Photographic process that uses one or more subtractive primary colors, e.g., cyan, magenta, and yellow, to control red, green, and blue light.

**Sunlight:** Light reaching the observer directly from the sun. To be distinguished from daylight and skylight, which include indirect light from clouds and refract the atmosphere.

**Super 16:** This format offers a much greater picture area than that of standard 16mm and provides a wider 1.66:1 aspect as compared to the 1.33:1 television aspect ratio.

**Super 8 mm:** Formerly an amateur format, now a popular choice for special effects and teaching.

**Super 35:** 35 mm camera format that utilizes entire frame area on film.

**Supercoat:** Protective coating on film.

**SUPER PANAVISION:** Similar to Panavision 35, but photographed flat in 65 mm. The 70 mm prints produce an aspect ratio of 2.25:1 with 4-channel sound and a ratio of 2:1 with 6-channel sound.

**Sweetening:** Audio post-production, at which time minor audio problems are corrected. Music, narration and sound effects are mixed with original sound elements.

**Swell:** The increase in motion picture film dimensions caused by the absorption of moisture during storage and use under high humidity conditions. Extreme humidity conditions and subsequent swelling of the film aggravates the abrasion susceptibility of the film surfaces.

**Synchronization:** A picture record and a sound record are said to be 'in sync' when they are placed relative to each other on a release print so that when they are projected, the action will coincide precisely with the accompanying sound.

**Synchronize:** Align sound and image precisely for editing, projection, and printing.

**Synchronizer:** A mechanism employing a common rotary shaft that has sprockets which, by engaging perforations in the film, pass corresponding lengths of picture and sound film simultaneously, thus effectively keeping the two (or more) films in synchronism during the editing process.

## — T —

**T-GRAIN Emulsion:** Emulsion made up of tablet-like crystals rather than conventional silver halides crystals; produces high-speed films with fine grain. Proprietary technology developed by Eastman Kodak Company, also a trademark.

**T-Stop:** Like F-number, measures the diameter of the lens opening. T-stop factors in the loss of light through the glass lens elements.

**Tail Ends, Tails:** The end of a film. The film must be rewound before projection if it is tails out.

**Take-up Reel:** The reel, which the already projected film winds up on.

**TECHNISCOPE:** A system designed to produce 35 mm anamorphic prints from a 35 mm negative having images approximately one half the height of regular negative images and produced by using a special one half frame (2 perforation) pulldown camera. During printing, the negative image was blown up to normal height and squeezed to normal print image width to produce a regular anamorphic print that provided a projected aspect ratio of 2.35:1. The system was designed primarily to conserve negative raw stock.

**Telecine:** A device for transferring motion picture film to an electronic state.

**Thin:** As applied to a photographic image, having low density. As applied to the physical properties of film, thin base film materials provide for more film per given roll diameter.

**Timing:** A laboratory process that involves balancing the color of a film to achieve consistent color and density from scene to scene. Also, includes adjusting exposure settings in duplication.

**Timecode:** A frame numbering system adopted by SMPTE that assigns a number to each frame of video which indicates hours, minutes, seconds and frames (e.g., 01:42:13:26).

**Toe:** Bottom portion of the characteristic curve, where slope increases gradually with constant changes in exposure.

**Tonality:** Smooth transition from one tone to another (light to dark).

**Tone-scale Neutrality and Linearity:** The ability of a film to reproduce truly neutral gray tones from black to white (this is a function of how the contrast ratio from red to green to blue in the negative aligns with the ratios in the print). Closely correlated is the linearity of the film's characteristic curve in all three-color records from shadows to highlights. Poor linearity can lead to poor neutrality in smaller ranges of the tone-scale. Performance here can also be related to flesh-to-neutral reproduction and film latitude.

**Trailer:** A length of film usually found on the end of each release print reel identifying subject, part, or reel number and containing several feet of projection leader. Also a short roll of film containing coming attractions or other messages of interest.

**Transmittance:** Amount of incident light transmitted by a medium; commonly expressed as percent transmittance.

**Travelling Matte:** A process shot in which foreground action is superimposed on a separately photographed background by optical printing.

**Trims:** Manual printer controls used for overall color correction. Also, unused portions of shots taken for a film; usually kept until the production is complete.

**Tungsten:** Artificial lighting with a color temperature of approximately 3200K.

— U —

**Uprezzing (Upsampling):** Resizing a digital image to a larger size.

**Ultraviolet Light:** Energy produced by the (invisible) part of the electromagnetic spectrum with wavelengths of 100 to 400 nanometers. Popularly known as “black light.” UV radiation produces fluorescence in many materials.

**Underexposure:** A condition in which too little light reaches the film, producing a thin negative or a dark reversal or print.

**Unsteadiness:** An objectionable amount of vertical motion in the screen image.

— V —

**Video Dailies:** Synched videotapes with burn-in used for editing and confirming a day’s shoot.

**Visual Density:** Spectral Sensitivity of the receptor that approximates that of the human eye.

— W —

**Wavelength:** A unit of measurement, from one crest to the next, in the spectrum. Stated as nanometer (1 billionth of a meter).

**Wide Area Network (WAN):** A network that spans a large geographical area.

**Widescreen:** A general term for form of film presentation in which the picture shown has an aspect ratio greater than 1.33:1.

**Winding:** Designation of the relationship of perforation and emulsion position for film as it leaves a spool or core.

**Workflow:** A group of processes—employing hardware, software, and people—that, when put into action, delivers an end result, or a portion of an end result.

**Workprint:** Any picture or sound track print, usually a positive, intended for use in the editing process. A series of trail cuttings leads to the finished version of a film. The purpose is to preserve the original intact (and undamaged) until the cutting points have been established.

— X —

— Y —

**Yellow:** Minus-blue subtractive primary used in the three-color process.



## — Z —

**Zero-Frame Reference Mark:** Dot which identifies the frame directly below as the zero-frame specified by both the human-readable key number and the machine-readable bar code.

