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GLOSSARY  
OF  
TELEVISION TERMS



OPTICAL SYSTEMS GROUP

RANGE COMMANDERS COUNCIL

WHITE SANDS MISSILE RANGE  
KWAJALEIN ATOLL  
YUMA PROVING GROUND

PACIFIC MISSILE TEST CENTER  
NAVAL WEAPONS CENTER  
ATLANTIC FLEET WEAPONS TRAINING FACILITY  
NAVAL AIR TEST CENTER

EASTERN SPACE AND MISSILE CENTER  
ARMAMENT DIVISION  
WESTERN SPACE AND MISSILE CENTER  
AIR FORCE SATELLITE CONTROL FACILITY  
AIR FORCE FLIGHT TEST CENTER  
AIR FORCE TACTICAL FIGHTER WEAPONS CENTER

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Many sources were referenced in compiling this glossary. They include COHU Electronics Glossary of Television Terms, IEEE Standards, EIA Standards, NTSC Standards, VIDEOGRAPHY, VIDEO NEWS, and Television Production by Wurtzel.

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OF  
TELEVISION TERMS

Prepared by

OPTICAL SYSTEMS GROUP  
RANGE COMMANDERS COUNCIL

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## FOREWORD

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Please direct any questions or comments you may have on the contents of this publication to

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**A-B ROLL**--The act of editing video to a master video tape by switching between the playbacks of two video tape recorders (A and B) that are in motion.

**ABERRATION**--Failure of an optical lens to produce an exact point-to-point correspondence between an object and its image. In a cathode ray tube (CRT), a defect when the electron lens does not return the beam to the point of focus at all points on the CRT.

**ABOVE THE LINE**--Personnel required to create a television production such as performers, writers, directors, and producers.

**ABSOLUTE LUMINANCE THRESHOLD**--The least amount of luminance that will produce visual perception for the human eye.

**ABSORPTANCE**--The ratio of absorbed radiant or luminous light flux to incident light flux.

**ABSORPTIVITY**--The measurement of an object's absorptance per unit path length of light.

**ACADEMY LEADER**--A video tape leader with a numerical count-down in seconds used to cue tapes for precise editing.

**ACCEPTANCE ANGLE**--In fiber optics, the maximum angle within which light will be accepted by an element or detector.

**ACCEPTANCE CONE**--In fiber optics, a parameter that defines the acceptable light-launching angles. The fiber optic cable acts as a waveguide for light launched within the acceptance cone.

**ACCEPTOR**--An impurity introduced into the semiconductor material of any electro-luminescent device to allow hole conduction or electrical energy flow.

**ACE**--Slang for a television lighting device whose output is a 1000 watts (1 kW). It is usually a 1000 watt fresnel spotlight.

**ACHROMAT**--A lens which brings two wavelengths of energy to a common focus and is corrected for spherical aberration at the mean wavelength for a single object distance.

**ACHROMATIC LIGHT**--Light which is free from extraneous colors. Light without dispersing into its constituent colors.

**ACHROMATIC LOCUS (ACHROMATIC REGION)**--A region including those points in a chromaticity diagram that represent, by common acceptance, arbitrarily chosen white points (references).

**ACKS**--See **ACTUALITIES**.

**ACTION AXIS**--An imaginary line running through the main subject being viewed that is used to maintain a consistent angle to the scene direction.

**ACTIVE LINES**--The horizontal lines of a video frame that carry the picture signal. All horizontal lines with the exception of those that occur during vertical blanking are active lines. The sum of the active lines forms the active picture.

**ACTIVE SWITCHER**--See **VERTICAL INTERVAL SWITCHER**.

**ACTUALITIES**--The act of recording or broadcasting events or scenes in real time.

**ADDITIVE PRIMARIES**--Primary colors which can be mixed to form other colors, but which cannot themselves be produced by mixing other primaries. Red, green and blue are the primaries in television because, when added in various proportions, they produce a wide range of other colors. See **DISPLAY PRIMARIES**.

**ADDRESS CODE**--See **SMPTE TIME CODE**.

**ADVANCE SYNC**--A signal output from a TBC designed to work with capstan servo video recorders. During video tape editing or duplication, the advance sync signal is connected to the playback VTR. The TBC adjusts the advance sync for time base errors introduced by the playback VTR.

**AFTER IMAGE**--See **RETAINED IMAGE**.

AID--See AREA IMAGING DEVICE.

AIEE--See IRE.

ALIASING--An adverse visual effect seen in television signals that originate from either charge coupled device imagers or digital graphic/video generators. Aliasing appears as a jagged edge on diagonal or curved lines and as a widening of closely spaced lines.

ALLOCHROMY--Any fluorescence in which the wavelength of the emitted light differs from that of the absorbed light.

ALPHA PARTICLE--A positively charged particle emitted from the nucleus of an unstable isotope which is composed of two protons and two neutrons. These particles produce a scintillating noise in an image intensifier.

ALPHA WRAP--The method of magnetic tape loading used in some helical scan video tape recorders when the video tape is wrapped completely around the head drum.

ALUMINIZED CATHODE RAY TUBE (CRT)--A CRT in which the display surface backside has been coated with a thin film of aluminum. This process intensifies the propagation of light.

AMBIENT LIGHT--The light present in the immediate environment that has been generated by either one or many sources. Ambient light can be affected by reflected light but it does not refer to concentrated light sources such as spotlights or beams of reflected light.

AMBIENT TEMPERATURE--The temperature of the surrounding medium such as gas, liquid or air which comes into contact with the apparatus - the temperature of the environment.

AMPLIFIER--1. In television, a device or devices that normally distribute and amplify television signals. Amplification is normally set for unity gain. Distribution ranges from two to six identical outputs. Equalization, dc clamping, and differential inputs are common features on television amplifiers. 2. In CATV, a device having a bandwidth of 5 to 400 MHz whose output is set to 56 dB for driving 75-ohm trunk coaxial cable.

ANASTIGMAT--Aplanat which is also corrected for astigmatism.

**ANGLE OF INCIDENCE**--The angle formed between a ray of light striking a reflective surface (point of incidence) and the normal or perpendicular to that surface.

**ANGLE OF REFLECTION**--The angle formed between the perpendicular or normal of a reflective surface and a ray of light that has been reflected from the point of incidence of that surface. The angle of reflection equals the angle of incidence.

**ANGLE OF REFRACTION**--The angle formed between the perpendicular or normal of a transparent or translucent surface and a ray of light that has passed through the point of incidence of that surface. The angle of refraction is determined by the refraction index of the material.

**ANGLE OF VIEW**--See **FIELD OF VIEW**.

**ANGSTROM**--The optical term for measuring the wavelength of light. There are 10 million Angstrom units to a millimeter. The visible spectrum is 4000 (red) to 7000 (violet) Angstrom units.

**ANGSTROM COEFFICIENT**--The coefficient of Angstrom's formula that measures the effect of dust particles in the atmosphere on light rays.

**ANISOPHOTIC SOURCE**--A light source that emits an uneven distribution of radiant energy through the visible range.

**ANISOTROPIC**--Any substance that exhibits different properties when tested along optical axes in different directions.

**ANNOTATOR**--See **CHARACTER GENERATOR**. The position is usually fixed within adjustable limits.

**ANSI**--Abbreviation for American National Standards Institute.

**ANTI-ALIASING**--A device, filter or circuit designed to counteract the effects of aliasing.

APERTURE--1. An opening that will pass light, electrons or other forms of radiation. In an electron gun, the aperture determines the size of, and has an effect on, the shape of the electron beam. 2. In television optics, the effective diameter of the lens that controls the amount of light reaching the photo-conductive or photo-emitting image pickup tube.

APERTURE ABERRATION--An aberration in optical imaging that occurs when two objects at different distances from the axis of the image plane cannot be brought into focus at the same time because of the size of the aperture.

APERTURE CORRECTION--Compensation for the loss of sharpness of detail because of the finite dimensions of the scanning beam in the horizontal dimension.

APERTURE DISTORTION--A loss of resolution or detail in the raster because of the size of the electron scanning beam.

APERTURE MASK--A metal plate with accurately formed holes placed close behind the phosphor-dot faceplate in a color picture tube. Its function is to ensure that each of the electron beams (RGB) ignite only the desired phosphor dot associated with the particular beam.

APERTURE RATIO--The ratio of light entering a camera lens determined by the amount of light passed with the lens fully opened as compared to the lens fully closed.

APERTURE STOP--In fiber optics, a mechanical aperture, often one of the lenses, that restricts the diameter of the axial light bundle passing through the optical system.

APLANAT--Achromat which is also corrected for coma.

APOCHROMAT--A lens which brings three wavelengths of energy to a common focus.

AQUADAG LAYER--A conductive coating applied to the inside of a monoaccelerator CRT between the neck and the screen.

**AREA IMAGING DEVICE (AID)**--A CCD sensor configuration with the sensor elements arranged in an X and Y direction. Area Image Devices are commonly available in 100x100, 244x190, and 488x380 arrays. Although other configurations are available, they are primarily used as television imagers.

**ASPECT RATIO**--The ratio of the raster width to raster height as defined by the active picture. In NTSC, the aspect ratio is 4:3. In HDTV, the aspect ratio is 16:9.

**ASPHERIC**--Not spherical; an optical element having one or more surfaces which are other than spherical.

**ASSEMBLE EDIT**--The process of concatenating new video recording to an existing video recording.

**ATMOSPHERIC ABSORPTION**--The absorption of light by particles in the atmosphere. This absorption is a mixture of true absorption and scatter and is measured using the Air Force Cambridge Research Lab line parameter compilation because of its high accuracy.

**ATMOSPHERIC ATTENUATION**--The reduction in light flux that results when light travels through the atmosphere. This attenuation is normally due to absorption and scattering.

**ATMOSPHERIC REFRACTION**--The refraction that results when light passes obliquely through the atmosphere. The atmosphere, like any translucent substance, has a refraction index which varies with atmospheric conditions.

**AUDIO**--A term pertaining to acoustic, mechanical, or electrical frequencies corresponding to normally audible sound waves. This frequency range is approximately 15 Hz to 20,000 Hz.

**AUDIO LAYBACK**--The process whereby multitrack audio is synchronized and re-recorded back to the original video tape.

**AUDIOSPACE**--The listening audience's only reference of aural reality. It refers to the way sound can be manipulated to produce a desired audience impression.

**AUDITION**--In television production, a special audio circuit which enables the audio engineer to preview or cue audio sources.

AUTO BALANCE--A system for detecting and correcting errors in the color balance of the white and black areas of the picture. Once detected, the errors in the white and black levels of both the red and blue signals are automatically adjusted.

AUTO-IRIS--The term for automatic iris, a device which varies the aperture of a camera lens to adjust for brightness variations in the scene being viewed.

AUTO LIGHT RANGE--The range of light, for example, sunlight to moonlight, over which a television camera is capable of automatically operating at a specified output.

AUTOMATIC BRIGHTNESS CONTROL (ABC)--In display devices, the self-acting mechanism which controls brightness of the device as a function of ambient light.

AUTOMATIC FREQUENCY CONTROL (AFC)--A process whereby the frequency of an oscillator is automatically maintained within specified limits.

AUTOMATIC GAIN CONTROL (AGC)--A process by which the gain is automatically adjusted as a function of input or other specified parameter.

AUTOMATIC LIGHT CONTROL (ALC)--The process by which the illumination incident upon the face of an image pickup device is automatically adjusted as a function of scene brightness.

AUTOMATIC PEDESTAL CONTROL (APC)--A process by which pedestal height is automatically adjusted as a function of input or other specified parameter.

AUTOMATIC SENSITIVITY CONTROL--The self-acting mechanism which varies system sensitivity as a function of the specified control parameters. This may include automatic target control, automatic light control, or any combination.

AUTOMATIC TARGET CONTROL--The self-acting mechanism which controls the image pickup tube target potential as a function of scene brightness.

**AVERAGE PICTURE LEVEL (APL)**--The duty cycle of the picture level during the unblanked portion or visible display of a video field. A video scene that is half black and half white is said to have a 50-percent APL.

**AZIMUTH ANGLE**--1. The angle measured clockwise in a horizontal plane, usually from north (true north, Y-north, grid north, or magnetic north). 2. With relation to polarized light incident on the surface of a dielectric, it is the angle between the normal or perpendicular of the incident plane and the plane of vibration. This term applies to refracted, reflected and incident light rays.

-B-

B--See TYPE B FORMAT. Also the blue component of an RGB component analog video system.

BACK FOCAL LENGTH--The distance from the last glass surface of a lens to the image plane.

BACKGROUND LIGHT--See SET LIGHT.

BACKGROUND LUMINANCE--The intensity of the light in the scene behind an object being viewed.

BACKGROUND SCINTILLATIONS--Noncoherent or random noise present at the output screen of either an image intensifier or light amplifier.

BACKLIGHT--1. The process of illuminating a subject from behind to separate the subject from the background by creating high contrast to the background. 2. The device used to provide backlight. The lighting instrument is positioned above and behind the subject, usually at a  $45^{\circ}$  angle.

BACK PORCH--That portion of a composite picture signal which lies between the trailing edge of a horizontal sync pulse and the trailing edge of the corresponding blanking pulse.

BACKSCATTERING--The deflection of nuclear or radiation particles scattering processes through angles that exceed  $90^{\circ}$  with respect to the original direction of motion.

BACKSCATTERING COEFFICIENT--With respect to an incident plane wave, the backscattering coefficient beta equals  $4\pi$  times the ratio  $(\theta_{\text{sub } r} / W_{\text{sub } i})$  where  $\theta_{\text{sub } r}$  equals the reflected power per unit solid angle in the direction of the source and  $W_{\text{sub } i}$  equals the power per unit area in the incident wave. The backscattering coefficient of a large object is estimated as being the product of its interception area and its scattering gain, provided that the interception area is the projected geometrical area and the scattering gain is the re-radiated power gain with respect to an isotropic radiator.

**BALLISTIC CAMERA**--A film or television camera that uses multiple exposures to record the trajectory of a bullet or missile, from a ground-level position.

**BANDING**--The effect of a series of horizontal lines appearing in the video picture. Banding is usually a result of misaligned heads on video tape recorders.

**BANDWIDTH**--1. The number of cycles per second expressing the difference between the lower and upper limiting frequencies of a frequency band. 2. The width of a band of frequencies.

**BANDWIDTH LIMITED GAIN CONTROL**--A control that adjusts the gain of an amplifier while varying the bandwidth. An increase in gain reduces the bandwidth.

**BANK**--See BUS.

**BAR DOT GENERATOR**--See DOT BAR GENERATOR.

**BARLOW LENS**--A negative lens used to increase the effective focal length of a telescope.

**BARN DOORS**--In television lighting, metal flaps mounted on lighting devices to control light distribution.

**BARREL DISTORTION**---In television, distortion that makes the televised image appear to bulge outward on all sides like a barrel. The opposite effect of pin cushion distortion, barrel distortion is commonly associated with wide angle lenses.

**BAR TEST PATTERN**--A special test pattern for adjusting color television equipment. The upper portion consists of vertical bars of saturated colors and grey. The lower horizontal bars have black and white areas and "I" and "Q" signals. Commonly referred to as a Color Bar Test Pattern.

**BASE LIGHT**--The minimum illumination of a television set or scene determined by the signal-to-noise ratio at the output of the television cameras viewing the scene. Signal to noise must be nominal at the desired aperture setting. Base light is usually augmented with additional lighting.

**BASE STATION**--In digital television, the camera control unit.

**BASIC SET**--A television set or stage that requires no props or accessory objects.

**BATTEN**--The pipes mounted on the ceiling and the walls of a television studio to which lighting devices are attached.

**BAYONET MOUNT**--A television camera lens mount that does not use threads; permits rapid changes of camera lenses.

**BEAM**--A concentrated, unidirectional flow of electrons or other electromagnetic energy.

**BEAMSPLITTER**--An optical device for dividing a light beam into two or more separate beams. A simple beamsplitter may be a very thin sheet of glass inserted in the beam at an angle to divert a portion of the beam in a different direction. A more sophisticated type consists of two right angle prisms cemented together at their hypotenuse faces. The cemented face of one prism is coated, prior to cementing, with a metallic or dielectric layer having the desired reflecting properties, both in the percentage of reflection and the desired color. In a color television camera, a three-way beamsplitting prism is employed in which multilayer films are deposited on the prism interfaces to divert red and green light to two separate image tubes leaving the blue light to pass through to a third image tube.

**BEEPERS**--A series of low frequency audio tones recorded on video tape for editing and cuing.

**BELOW THE LINE**--Physical requirements of a television production including facilities, studios, services, and staging.

**BETACAM**--The component video recording format developed by Sony Corporation. The video signal is recorded in a Y, R-Y, B-Y format which offers an immense improvement over composite NTSC in color resolution. This signal must be translated and encoded before interfacing to NTSC systems. Betacam is a trademark of the Sony Corporation.

**BETAMAX/VHS**--The common terms for 1/2 inch video cassette recorders. Typical frequency response of these machines is 3 to 3.5 MHz. Betamax and VHS formats are not interchangeable. Betamax is a trade name of the Sony Corporation.

**B/G**--Abbreviation for background. The scene behind the subject of interest.

**B-H CURVE**--The hysteresis curve produced by saturating magnetic video tape with a bias frequency modulated with video signal.

**BIAS**--In magnetic recording devices, the signal applied to the magnetic heads to saturate the magnetic tape underneath the head for maximum effect on the magnetic particles located on the tape.

**BIAS LIGHT**--A device used to boost the output of image pickup tubes for operation at lowlight levels.

**BINARY VIDEO**--1. A video system that uses only two levels of luminance, usually black and white. 2. A video signal that has been processed into two luminance levels. Binary video signals are used in text and line graphic transmission and in image processing systems.

**BINARY VIDEO DECODING**--The technique of electronically decoding each binary bit of data that has been inserted in either the vertical interval or on selected horizontal scan lines by a binary video inserter.

**BINARY VIDEO ENCODER**--A device which processes the normal or analog grey level output from a video camera into two discrete levels, usually black and white.

**BINARY VIDEO INSERTER**--A device for inserting either a single binary bit of data on selected horizontal scan lines or a stream of serial bits during a horizontal scan interval usually within vertical blanking. Data may include time, status, and engineering or tracking information.

**BLACK**--See **BLACKER-THAN-BLACK**.

**BLACK AND WHITE**--The common term for monochrome.

**BLACKBODY**--An ideal object, perfectly black for all wavelengths, that completely absorbs all radiant energy striking it. The radiation emitted when a blackbody is heated is referred to as blackbody radiation. A perfect blackbody has an emissivity of one.

**BLACK BURST**--A color signal with all the white removed. The picture information does not exceed pedestal level. It is used by video mixers and switchers to maintain color lock between two or more sources of color video signal.

**BLACK COMPRESSION**--The reduction in gain of the dark areas of a picture signal as compared to the levels corresponding to the midrange light value in the picture.

**BLACK LEVEL**--The picture signal level corresponding to a specified maximum limit for black peaks. In NTSC, it is usually determined by the pedestal level (IRE 7.5 percent).

**BLACK NEGATIVE**--The television picture signal in which the polarity of the voltage corresponding to black is negative with respect to that which corresponds to the white area of the picture signal. The normal video transmission mode.

**BLACK PEAK CLIPPING**--The process of limiting the amplitude of the picture signal to a preselected maximum black level, usually at blanking level.

**BLACK SATURATION**--See **BLACK COMPRESSION**.

**BLACKER-THAN-BLACK**--The portion of the standard television signal devoted to the sync signal. It is sometimes referred to as the black signal. See **BLANKING LEVEL**.

**BLANKING**--The process whereby the beam in an image pickup tube or monitor is cut off during the retrace period. In television, blanking occurs for each horizontal scan line and each vertical scan field. In NTSC, the horizontal blanking width is 10.49 to 11.44 ms, and the vertical blanking width is 13.1 horizontal lines to 21 horizontal lines with 21 lines being the broadcast standard.

**BLANKING LEVEL**--The level of a composite picture signal which separates the range containing picture information from the range containing sync information; also called porch level or blacker-than-black. In most standards, it is considered to be the zero reference point. The blanking level will not vary more than 5 percent from the reference point.

**BLAST FILTER**--A microphone attachment (either built-in or external) which suppresses wind noise and breath popping.

**BLEEDING**--A condition in which white or background areas appear to flow irregularly into black or foreground areas. It can be caused by an improperly set video or chroma key or by a starved beam condition.

**BLEMISH**--1. In television, a physical impurity in the glass envelope of a CRT that creates picture distortion. 2. Any degradation to a solid-state imager (CCD) that adversely affects the performance characteristics of the sensor.

**BLOCKING**--The process of laying out and analyzing the locations of subjects, cameras and all the accessories to be used in a television production.

**BLOOMING**--1. The defocusing of regions of the picture where the brightness is at an excessive level because of enlargement of spot size and halation of the fluorescent screen of the cathode ray picture tube. 2. The over saturation of an image pickup tube when exposed to excessive light.

**BLOOPING PENCIL**--A magnetic device used to erase the audio on a magnetic film track. It cannot be used with video tape.

**B-MAC**--Acronym for Broadcast Multiplexed Analog Component video. See S-MAC.

**BNC**--The commonly accepted term for a specific size and type of coaxial cable connector used on almost all video equipment. It is the de facto standard for commercially made television equipment. Specifically, the B stands for bayonet (connection lock type) and the NC stands for the connector type.

**BOARD**--The slang for the audio mixer and control console located in the production control room.

**BODY MOUNT**--A device used to mount an ENG/EFP video camera to a camera operator to provide steady pictures while maintaining flexible movement.

**BOOM MICROPHONE**--A microphone suspended from a long arm to remove the microphone from the camera field of view.

**BOOM SHADOW**--The shadow or reflected image of the boom microphone.

**BORDER**--In television production, edges which are electronically produced to visually separate and distinguish wipes, split screens or lettering.

**BOUNCE**--Sudden variations in picture presentation such as brightness and size that is independent of scene illumination.

**BOX SET**--The slang term for a television production studio or set that has three walls.

**BREATHING**--A visual variation similar to bounce that occurs at a slow, regular rate.

**BREEZEWAY**--In NTSC color, that portion of the back porch between the trailing edge of the sync pulse and the start of the color burst.

**BRIDGING**--Connecting two electrical circuits in parallel. In television, high input impedances are maintained to minimize the effect on the source signal.

**BRIDGING AMPLIFIER**--An amplifier for bridging an electrical circuit without introducing an apparent change in the performance of that circuit. In television, bridging amplifiers are found in switchers and test equipment.

**BRIGHTNESS**--The attribute of visual perception in which an area appears to emit more or less light. The quantitative measurement of visually perceived light. Brightness is a product of either illumination from natural light sources or electronic excitation of light emitting elements. (Luminance is the recommended name for the photometric quantity.) Refer to IEEE Standard for more information.

**BRIGHTNESS CHANNEL--See LUMINANCE CHANNEL.**

**BRIGHT SIGNAL--See LUMINANCE SIGNAL.**

**BRIGHT SOURCE PROTECTION (BSP)--**Normally associated with image intensifiers. A circuit which limits the photocathode current or removes power when the photocathode current consumption exceeds a selected threshold because of excessive illumination present on the photocathode imaging area.

**BROAD--**In television lighting, a square or rectangular floodlight.

**BROADBAND--**In either CATV or a local access network, a system capable of passing a large band of RF frequencies. This band is usually, but not limited to, 5 MHz to 400 MHz.

**B-ROLL--**The process whereby a film clip or insert from a playback video tape is edited into the master tape electronically while the tapes are in motion.

**BURNED-IN IMAGE--**Also called burn-in. An image which persists in a fixed position in the output signal of a camera tube after the camera has been turned to or views a different scene. Burn-in is caused by excessively bright subjects, extreme contrast and overly extended viewing of a static scene. Solid-state imagers are not subject to burn-in.

**BURST--See COLOR BURST.**

**BURST FLAG--**A signal that times and locates the insertion point for the color burst into the color signal.

**BUS--**In television, the row of buttons or switches located on a video switcher.

**BUST SHOT--**The act of capturing a subject in the video frame from midchest to slightly above the head.

**B/W--**Abbreviation for black and white or monochrome television.

B-Y--The acronym for Blue minus Y (luminance). The PAL, S-MAC, or Betacam component video signal that is equivalent but not equal to the 'I' signal in NTSC.

-C-

C--See TYPE C FORMAT.

'C' MOUNT--A television camera lens mount of the 16mm format, 1 inch in diameter with 32 threads to the inch.

CALL SHEET--In television production, a schedule indicating talent, production and technical personnel needed for rehearsal and production.

CAM HEAD--A device for mounting a television camera that allows very smooth camera moves by using a series of cams or cylinders to control pan and tilt.

CAMEO--In television lighting, a technique in which foreground subjects appear before a totally black background. See LIMBO.

CAMERA CARD--A graphic board or card created exclusively for viewing by a television camera.

CAMERA CHAIN--A television camera with associated control units, power supplies, monitor, and connecting cables.

CAMERA DOME--A spherical high-impact plastic dome that covers a television camera for purposes of concealment in security systems or protection from the environment. Domes are available in transparent or tinted optical grade plastic.

CAMERA FORMAT--See LENS FORMAT.

CAMERA HOUSING--See ENVIRONMENTAL HOUSING.

CAMERA TUBE (Television)--A tube for conversion of an optical image into an electrical signal. See IMAGE PICKUP TUBE.

**CANDELA (CANDLE)**--The luminous intensity in the perpendicular direction of a 1/600,000 square meter surface of a blackbody at the freezing temperature of platinum under a pressure of 101,325 pascals. The SI unit of luminous intensity. A point source of one candela intensity radiates one lumen into a solid angle of one steradian.

**CANDID SHOTS**--See ACTUALITIES.

**CANDLE POWER**--Luminous intensity expressed in candelas.

**CANS**--In television, slang for headset.

**CAPSTAN**--The driven spindle in magnetic tape recorders which rotates while contacting the magnetic tape and thereby feeds the tape from the supply to takeup at a controlled rate. The capstan normally only contacts the tape during playback and record.

**CARDIOD MICROPHONE**--A microphone with a heartshaped, directional pickup pattern.

**CARTRIDGE**--See VIDEO CARTRIDGE.

**CASSETTE**--See VIDEO CARTRIDGE.

**CATHODE RAY TUBE**--Also called CRT, a vacuum tube in which the electrons emitted by a heated cathode are focused into a beam and directed toward a phosphor-coated surface which then becomes luminescent at the point where the electron beam strikes. The beam intensity is varied to produce an image of varying contrast on the face of the CRT.

**CATV**--Abbreviation for Community Antenna Television or cable television. The meaning has broadened in recent years to include all aspects of television transmitted over coaxial cable systems.

**CAV**--See COMPONENT ANALOG VIDEO

**CCD**--See CHARGE COUPLED DEVICE.

CCIR--The abbreviation for Consultative Committee on International Radio, a committee that meets every four years to discuss and establish international law and standards for television and radio broadcast.

CCTV--Abbreviation for Closed Circuit Television. A television system that does not broadcast television signals but transmits them over a closed circuit. CATV is not considered to be CCTV.

CUE--The insertion of data, usually audio, onto a continuous performance or recording medium.

CCU--Abbreviation for Camera Control Unit.

CEI--The initials of the official French organization Commission Electrotechnique Internationale.

CHANNEL--In television, that part of a frequency spectrum, usually 6-MHz wide, assigned to the transmission of a related video and audio signal. See VHF and UHF.

CHANNEL ELECTRON MULTIPLIER (CEM)--A photoelectric detector consisting of a glass tube internally coated with a low conductance material. Voltage applied along the tube causes electrons from the photocathode at the end of the tube to be accelerated as they pass to the anode. Secondary electrons are generated when the cascading electrons strike the channel walls. The secondary electrons join the source electrons, hence multiplication. The CEM can multiply both electrons and high-energy protons.

CHANNEL IMPEDANCE--The parallel resistance and capacitance appearing between the active guard ring junctions in a silicon photodiode.

CHALNICON--The trade name for an image pickup tube of the direct readout type designed for low light applications. The photoconductive target is characterized by high sensitivity, good resolution, and decreased susceptibility to burn-in.

CHARACTER GENERATOR--A device that generates alphanumeric characters in different fonts and sizes (color optional) that are positioned within the visible television signal. The characters may be generated from either an alpha-numeric keyboard or by inputs from external devices such as encoders, time code generators and event switches.

**CHARACTER INSERTER**--A synchronized character generator and mixer capable of inserting characters into an external video source.

**CHARGE COUPLED DEVICE (CCD)**--For imaging devices, a self-scanning semiconductor array that uses metal oxide semiconductor (MOS) technology, surface storage, and information transfer. It specifically refers to the technique of transferring electrical charge from one cell to another and is used in imagers to transfer photo-generated electrons to an output device. These devices are also used by analog signal processors such as time base correctors to delay video signals.

**CHARGE INJECTION DEVICE (CID)**--A solid-state imaging device using an image sensor composed of a two-dimensional array of coupled MOS charged storage capacitors, designed to convert near infrared energy to electrical signals that represent a broad gray shade or tonal rendition. The sensor collects minority carrier charges which have been generated by photon energy in the substrate near the charge storage capacitors. Once collected, the minority carriers are stored in the surface inversion region. Signal readout is achieved by monitoring the current flow when the above stored charge is injected into the substrate.

**CHEAT**--In television production, repositioning a subject, any camera, or object to obtain a better view.

**CHROMA**--The quality of color which embraces both hue and saturation. The perception of chroma is a visual sensation with judgment based on the amount of pure chromatic color present.

NOTE: White, black and gray tones have no chroma.

**CHROMA CONTROL**--A control on a color television monitor that regulates the saturation (vividness) of color in a color picture. It is also called color control or color gain control.

**CHROMA DETECTOR**--Detects the absence of chrominance information in a color encoder input. The chroma detector automatically deletes the color burst from the color encoder output when the absence of chrominance is detected. Sometimes this device is called a color killer.

**CHROMA KEY**--The method of electronically inserting the image from one video source into the picture from another video source. The process uses a selected key color which, wherever it appears in the foreground shot, is replaced by the background image. A common color key is blue.

**CHROMA KEY TRACKING**--The ability of digital video processors to continually vary the size of the chroma key insert, depending on the movement of the foreground subject camera to maintain proper visual perspective.

**CHROMA KEY WINDOW**--The area on the foreground subject that holds the key color in which the background image will appear on the composite of the two video sources. The most common usage is to insert graphics behind the subject being viewed.

**CHROMATIC ABERRATION**--An optical defect of a lens that results in the lens not being able to focus different wavelengths of light on a flat plane. The defect affects the index of refraction. Depending on the wavelength, a ray of light is broken into a multitude of rays and is seen as color fringes or halos along edges and around every point in the image.

**CHROMATICITY**--That color attribute of light definable by its chromaticity coordinates.

**CHROMATICITY COORDINATE (LIGHT)**--The ratio of any one of the tristimulus values of a sample to the sum of the three tristimulus values.

**CHROMATICITY DIAGRAM**--A plane diagram formed by plotting one chromaticity coordinate against another. Refer to the IEEE Standard for further information.

**CHROMINANCE**--A term defining the hue and the saturation of a color television picture signal. It does not refer to brightness. The colorimetric difference between any color and a reference color of equal luminance, the reference signal having a specified chromaticity.

**CHROMINANCE SIGNAL**--The portion of an NTSC color television signal containing the color information as a phase-shifted 3.58-MHz subcarrier that is added to the luminance signal to convey color information.

CID--See CHARGE INJECTION DEVICE.

CIE--Abbreviation from the French for the International Commission on Illumination.

CLAMP AMP--See DISTRIBUTION AMPLIFIER.

CLAMPING--The process that establishes a fixed level for the picture level at the beginning of each scan line. Most television signals are usually clamped to blanking. Devices with differential inputs clamp the video signal to sync tip.

CLAPSTICK--An identification slate with a hinged top which, when brought down quickly, produces a loud clap and is used to synchronize sound for two or more microphones.

CLIP--1. In television production, the control on a video switcher used to regulate the intensity of a matte, key or insert. 2. A short piece of film or video tape that is added to or extracted from a master tape.

CLIPPING--The shearing off of the peaks of a signal. For a picture signal, this may affect either the positive (white) or negative (black) peaks. In a composite video signal, clipping can adversely affect the sync signal. White clipping is adjustable in most television devices and is normally set for 110 IRE units.

CLOSED CIRCUIT TELEVISION--See CCTV.

CLOSE UP--See CU.

COARSE CHROMINANCE PRIMARY--See 'Q' SIGNAL.

COAXIAL CABLE (COAX)--A particular type of cable capable of passing a wide range of frequencies with a very low signal loss. Such a cable, in its simplest form, consists of a hollow metallic shield with a single wire accurately placed along the center of the shield and isolated from the shield. In television, nominal impedance for this cable is 75 ohms.

COERCIVITY--A demagnetizing force measured in oersteds that will reduce the induction of magnetic tape to zero.

COGWHEEL--Horizontal displacement of alternate scan lines on the order of 1 microsecond which results in a gear-toothed appearance of vertical and diagonal lines within a given scene.

COHERENT--In the study of light and energy, light or energy waves that have a relationship to all light or energy waves emanating from one source. Laser light sources emit coherent light.

COHERENT FIBER BUNDLE--A rigid or flexible bundle of optical fibers capable of transmitting an image the length of the bundle.

COHERENT LIGHT SOURCE--A light source that is capable of producing light radiation in which the generated lightwaves vibrate in phase with one another. The laser is an example of a coherent light source.

COHERENT NOISE--The manifestation of light from scatterers outside the plane of an object in a coherent light system. Such light interferes with the light path and is considered noise.

COLLIMATION--1. The process of aligning the optical axes of optical systems to the reference mechanical axes or surfaces of an instrument. 2. The adjustment of two or more optical axes with respect to one another. 3. The process whereby a divergent beam of radiation or particles is converted into a parallel beam.

COLLIMATOR--An optical device consisting of a lens or parabolic concave mirror with an illuminated slit or reticle at its focal plane. The reticle may be a plain cross, or it may carry marks, subtending known angles at the nodal point of the lens. Collimators are used in lens testing to determine focal lengths, and in many other meterological applications where the position of a distant object at a known location is required.

COLOR BAR--See BAR TEST PATTERN.

COLOR BREAKUP--Any transient or dynamic distortion of the color in a television picture that results in partial separation of the color picture into its display primaries. It can result from too rapid a change in the viewing conditions.

**COLOR BURST**--In NTSC color, an approximate 9-cycle burst of 3.58-MHz subcarrier on the back porch of the composite video signal which serves as a color synchronizing signal to establish a frequency and phase reference for the demodulation of the chrominance signal. See COLOR SUBCARRIER.

**COLOR CODER**--The preferred term in Europe. In the United States, the term color encoder is used. See COLOR ENCODER.

**COLOR CONTAMINATION**--An error of color rendition caused by incomplete separation of paths carrying different color components (RGB) of the picture.

**NOTE:** Such errors can arise in the optical, electronic or mechanical portions of a color television system.

**COLOR COORDINATE TRANSFORMATION**--Computation of the tristimulus values of colors in terms of one set of primaries from the tristimulus values of the same color in another set of primaries.

**COLOR CORRECTION FILTER**--A device which, when installed in front of or behind the camera lens, changes the color temperature of the scene being viewed.

**COLOR DECODER**--An apparatus for deriving the signals for the color display device from the color picture signal and the color burst.

**COLOR DIFFERENCE SIGNAL**--1. An electrical signal that, when added to the luminance signal, produces a signal representative of one of the tristimulus values (with respect to a stated set of primaries) of the transmitted color. 2. In simpler terms, the signal or signals which convey color hue and saturation. 3. In NTSC, the 'I' and 'Q' signals.

**COLOR DILUTION**--A reduction in the saturation of a color by the addition of white light, for example, changing red to pink.

**COLOR EDGING**--Extraneous colors appearing at the edges of colored objects and differing from the true colors in the object or objects.

COLOR ENCODER (NTSC)--A device for generating either the non-composite or the composite color picture signal and the color burst from the RGB camera signals or equivalents and the 3.58-MHz chrominance subcarrier.

COLOR FLICKER--The flicker resulting from fluctuation of both chromaticity and luminance.

COLOR FRINGING--Spurious chromaticity along the boundaries of objects in the picture.

COLORIMETRY--The techniques for the measurement of color and for the interpretation of the results of such measurements.

COLORIZER--A device which adds preselected colors to a monochrome image according to the gray scale information present in the picture. Different tonal gray shades produce preselected colors.

COLOR KILLER--See CHROMA DETECTOR.

COLOR MATCH (COLORIMETRY)--The condition in which the two halves of a structureless photometric field are judged by the observer to have exactly the same appearance.

COLOR MIXTURE--Color produced by the combination of lights of different colors.

COLOR MIXTURE DATA--See TRISTIMULUS VALUES.

COLOR PICTURE SIGNAL--This term is technically ambiguous and its use is not approved. Use of the specific terms, noncomposite color picture signal or composite color picture signal, is preferred.

COLOR PURITY--The degree to which a color is free of white or any other color. In reference to the operation of a tri-color picture tube, it refers to the production of pure red, green or blue illumination of the phosphordot faceplate.

COLOR SATURATION--The degree to which a color is free of white light.

**COLOR SIGNAL**--Any signal at any point for wholly or partially controlling the chromaticity values of a color television picture.

**COLOR STRIPE FILTER**--A unique arrangement of two dichroic filter stripes having suitable color transmission characteristics, alternated with clear transmission areas. It is used to automatically encode the colors of a televised scene into a single video signal. See **DICHROIC FILTER**.

**COLOR SUBCARRIER**--In NTSC color, the 3.579545-MHz carrier whose phase modulation is added to the luminance or monochrome signal to convey color information. See **COLOR BURST**.

**COLOR SYNC SIGNAL**--A signal used to establish and maintain the same color relationships that are transmitted.

**COLOR TEMPERATURE**--The absolute temperature of the full (blackbody) radiator for which the ordinates of the spectral distribution curve of emission are proportional (or approximately so) in the visible region to those of the distribution curve of the radiation considered, so that both radiations have the same chromaticity. In simpler terms, it is the relative redishness or bluishness of light measured in degrees Kelvin. In television, the standard for proper camera operation is 3200° Kelvin.

**COLOR TRANSMISSION**--The transmission of a signal wave for controlling both the luminance values and the chromaticity values in a picture.

**COLOR TRIANGLE**--A triangle drawn on a chromaticity diagram, representing the entire range of chromaticities obtainable as additive mixtures of three prescribed primaries represented by the corners of the triangle.

**COMA**--A defect in a cathode ray tube that makes the normally circular electron beam appear comet-shaped at the edges of the tube screen.

**COMB FILTER**--An electronic circuit or device designed to separate frequencies in a television signal. Once separated, the frequencies are identified for nulling, phase shifting, and other electronic manipulations to counteract frequency induced noise and/or distortion. Typical applications are anti-aliasing, image enhancement and noise cancellation.

COMET TAILING--In image pickup devices, a smear of white light created by an excessively bright portion in the viewed scene.

COMPATIBILITY (Color Television)--The property of a color television system that permits substantially normal monochrome reception of the transmitted signal by typical unaltered monochrome receivers.

COMPLEMENTARY WAVELENGTH (Color)--1. The wavelength of a spectrum light that, when combined in suitable proportions with the light considered, yields a match with the specified achromatic light. See DOMINANT WAVELENGTH. 2. Adding two colors to produce white light.

COMPONENT ANALOG VIDEO (CAV)--The fundamental building blocks for all color television. All television images originate from RGB sensors or generators. The RGB components are translated to different components to facilitate color encoding for single wire or RF transmission. In NTSC, the components are 'Y', the luminance channel, and 'I' and 'Q', the chrominance channels.

COMPOSITE BLANKING--A composite signal comprised of horizontal and vertical blanking signals used to blank retrace time in image pickup tubes and television display devices.

COMPOSITE COLOR PICTURE SIGNAL (NTSC)--The electrical signal that represents complete color picture information and all sync signals.

COMPOSITE COLOR SYNC (NTSC)--The signal comprising all the sync signals necessary for proper operation of a color receiver.

COMPOSITE MASTER--The end product of video tape editing. The final result of effects mixing, switching and selecting of video sources.

COMPOSITE SYNC SIGNAL--Incorporates all sync and blanking required to operate television equipment. In NTSC, the level will be 4-volts peak to peak until combined with the video signal. Composite sync level is 0.3-volt peak to peak.

**COMPOSITE VIDEO SIGNAL**--The combined signals in a television signal, including the picture signal, vertical and horizontal blanking, and sync. In NTSC, the signal level will be as close as possible to 1-volt peak to peak with the minimum no less than 0.9851-volt and the maximum no greater than 1.086 volts.

**COMPRESSION**--The reduction in gain at one level of a picture signal with respect to the gain at another level of the same signal.

**CONFORMING**--In television production, the act of matching original video tape footage to an edited work tape to produce the final master tape.

**CONSTANT LUMINANCE TRANSMISSION**--A type of transmission in which the sole control of luminance is provided by the presence of the luminance signal, and no control of luminance is provided by the chrominance signal.

**CONTRAST**--The range of difference between light and dark values in a picture usually expressed as a constant ratio (the ratio between the minimum and maximum light value). In television, contrast level ranges from 0.07 volt (black) to 0.7 volt (white) and is usually defined in 10 steps of grey, 0.07 volt per step. Greater resolution is obtainable but is not discernible to the human eye when viewed on a standard television monitor.

**CONTRAST RANGE (CONTRAST RATIO)**--The difference between the brightest and darkest portions of a picture. In television, a contrast ratio of 20:1 to 30:1 is the widest possible brightness range which still permits accurate picture reproduction.

**CONTRAST TRANSFER FUNCTION**--See MODULATION TRANSFER FUNCTION.

**CONTROL TRACK**--The area on a video tape containing pulse information derived from the vertical sync of the recorded video signal which is used to synchronize the playback and editing of video tape.

**CONTROL TRACK TIME CODE**--A variation of SMPTE time code, which counts control track pulses to produce an 8-bit code for editing video tape. It does not identify frames or fields, but simply counts pulses from any predetermined starting point on the video tape.

CONVERGENCE--1. The crossover of the three electron beams of a three-gun tri-color picture tube which normally occurs at the plane of the aperture mask. 2. The process of aligning the three guns of a color picture tube so that the respective beams are coincident on the phosphor-coated surface of the CRT for any given moment during frame scan time. In a delta gun CRT, convergence requires both static and dynamic control with additional magnetic shunts usually required for maximum edge convergence. In an in-line gun CRT, convergence is done solely on the neck of the CRT by adjusting the magnetic deflection rings.

COOKIE--See CUCALORUS.

COORD--Abbreviation for coordination which is the act of playing two or more video tape recorders through a switcher to produce a composite master.

COUNTDOWN--See ACADEMY LEADER.

CRABBING--The ability of the wheels of a dolly or pedestal to travel sideways while remaining parallel to one another to provide smooth travel.

CRADLE HEAD--A device for mounting cameras designed to counteract the weight of the camera during tilts.

CRAWL--In television production, a device consisting mainly of a large drum or paper roll which moves titles or other graphic material horizontally or vertically through a camera's field of view.

CRAWLING--In television, imperfections along the edges of a chroma key whereby the vertical sides of the insert appear to move slowly either up the edge or down the edge. Crawling is the result of improper color burst mixing and/or phasing.

CRITICAL ABSORPTION WAVELENGTH--The wavelength of light at which the absorption of any given element begins to acquire an inconstant value.

**CRITICAL ANGLE**--1. Basically, the least angle of incidence at which total reflection occurs. 2. The angle of incidence, in a denser medium at an interface between a denser and less dense medium, at which the light is refracted along the interface. When the critical angle is exceeded, the light is totally reflected back into the denser medium. The critical angle varies with the indices of refraction of the two media as a function of

$$\sin i_c = n'/n$$

$i_c$  is the critical angle,  $n'$  the refractive index of the less dense medium, and  $n$  the refractive index of the denser medium.

**CROP**--The act of reducing a field of view by moving the camera closer to the scene to remove undesirable objects from the field of view.

**CROSSCOLOR**--In NTSC and PAL systems, the spurious colors seen in a color signal which are caused by the crossover of high frequency components from the luminance channel. Crosscolor appears in the picture as colors crawling slowly on the edges of characters and objects with tweed-type patterns.

**CROSSFADE**--The simultaneous fade-in of either one video, audio or lighting source as another matching source is faded out. The original image is faded out as the new image is faded in. Also called segue.

**CROSS HAIR**--A thin black or white vertical and horizontal line in the television picture that is introduced optically or electronically. Optically inserted cross hairs are commonly used to establish or designate a particular geometric position or geometric reference axis. Electronically inserted movable cross hairs are commonly used in geometric coordinate measuring equipment and coordinate digitizers.

**CROSSHATCH**--See DOT BAR GENERATOR.

**CROSS LIGHT**--The act of illuminating a subject or scene from two different directions forming approximately equal angles with the optical axis of the scene. The lights are placed in front of the scene at angles determined by the optical axis.

**CROSS LUMINANCE**--In NTSC and PAL systems, the herringbone pattern that appears in a monochrome picture caused by the cross-over of high frequency components from the chrominance channels. Some devices use a notch filter to minimize this effect. Others use a color killer to completely eliminate the effect.

**CROSSSCAN**--See QUADRAPLEX.

**CROSSTALK**--Interference between adjacent video and/or audio channels. Interference between the heads or head gap of a magnetic tape recorder.

**CRT**--See CATHODE RAY TUBE.

**CRUSH**--In television, the electronic processing of a video signal to compress all blacks and dark grays so that upper white levels are included in the scene. This processing becomes necessary when the contrast range exceeds a 20:1 contrast ratio.

**CRYSTAL BLACK**--A prerecorded video tape comprised of a black-only signal (composite sync). Black is recorded to lay down a continuous control track on tape so that video can be inserted anywhere on the tape.

**CU**--Abbreviation for close-up. A closer than an average scene of a subject.

**CUCALORUS**--A metal pattern which is inserted into a ellipsoidal spotlight to produce a shadow pattern on desired surfaces.

**CUE CARD**--A card, board or CRT screen containing the text a subject is reciting during production.

**CUE TRACK**--The area on video tape reserved for additional audio information. In most cases track 2 is used. A common practice is to record SMPTE time code for future editing.

**CUT**--1. The verbal command used to stop all action during a production. 2. The act of switching instantly from one scene to the next during editing or video production.

**CUTAWAY**--In television production, a camera which is set up to view a scene related to the current subject of interest. Its purpose is to provide video signals in case of problems with other equipment and to avoid jump cuts.

**CUT FILTER**--An optical filter designed to reduce the spectral response of a television imager. Commonly placed in CCD cameras to reduce the IR response of the imager.

**CUTOFF FREQUENCY**--That frequency beyond which no appreciable energy is transmitted. It may refer to either an upper or lower limit of a frequency band. In broadcast television, the lower sideband is cutoff to reduce bandwidth requirements.

**CYCLORAMA (CYC)**--A continuous piece of canvas fabric mounted on the edges of a studio or set to produce the illusion of infinite depth. A common effect is to illuminate the cyc with colored light.

-D-

DAISY CHAIN--See LOOP THROUGH.

DARK CURRENT--The current that flows in a photoconductor when it is placed in total darkness.

dB--See DECIBEL.

DC RESTORATION--The re-establishment by a sampling process of the dc and low frequency components of a video signal which have been degraded by either RF transmission or the LC factor of long cable leads.

DECIBEL (dB)--The standard measure of the relative intensity of power expressed on a logarithmic scale. Audio gain is expressed in decibel volts (dBV) as is the power gain of broad-band cable systems. The gain doubles every 3 dB. The dB is also a ratio of input power to output power and a ratio of either voltage or current in devices of equal impedances.

DECODER--The circuitry in a color television system which transforms the detected color signals into component video. In metric video, a device that recovers binary data from a horizontal or vertical encoded picture signal.

DEFINITION--1. The fidelity of a television system to the original scene. 2. The degree of sharpness or clarity in an optical image. See RESOLUTION.

DEFLECTION YOKE--An assembly of one or more coils whose magnetic field deflects an electron beam.

DELAY DISTORTION--Distortion resulting from the non-uniform speed of transmission of the various frequency components of a signal; the various frequency components of the signal have different times of travel (delay) between the input and output of a circuit.

**DELTA GUN**--A common configuration used in the manufacture of cathode emitters in a television CRT. The cathodes are arranged in a triangular pattern with the blue cathode or gun usually at the top, the red gun to the left, and the green gun to the right. Converging a delta gun CRT requires both static and dynamic convergence.

**DENSITY**--A measure of the light-transmitting or reflecting properties of an area which is expressed by the common logarithm of the ratio of the incident to transmitted or reflected light flux.

**DEPTH OF FIELD**--The in-focus range of a lens or an optical system. It is measured by focusing the camera on a particular object and measuring the distance from a point of blurry focus in front of the object of interest to a point of blurry focus behind the object of interest. Blurriness is a matter of preference by the viewer. Often miscalled the depth of focus which applies to the lens to film/image tube focal distance. Depth of field is inversely proportional to the lens opening.

**DEPTH OF FOCUS**--The range of the image tube to lens distance for which the image formed by the lens is clearly focused.

**DETAIL CONTRAST**--The ratio of the amplitude representing the reference low frequency component, usually expressed as a percentage at a particular line number.

**DETAIL ENHANCEMENT**--See ENHANCEMENT.

**DEUCE**--The slang term for a 2000-watt lighting device. It usually refers to a 2-kW fresnel spotlight.

**DIAPHRAGM**--1. In television, the adjustable opening which varies the aperture size of a lens. 2. In audio, the element in a microphone which vibrates according to the pressure variations in the air created by the sound source.

**DICHROIC FILTER (MIRROR)**--A semitransparent filter (mirror) which selectively transmits light according to its wavelength rather than its plane of vibration. See COLOR STRIPE FILTER.

**DIFFERENTIAL GAIN**--The amplitude change, usually of the 3.58-MHz color subcarrier, introduced by the overall circuit, measured in dB or percent with a vectorscope, as the picture signal on which the subcarrier rides is varied from blanking to white level.

**DIFFERENTIAL INPUT**--An input circuit configuration found in most video distribution amplifiers which features high input impedance and very good low frequency noise immunity. Typical noise rejection at 60 Hz is 40 to 60 dB of attenuation. Differential inputs are also used in some monitors, effects switchers, test equipment, and video processors.

**DIFFERENTIAL PHASE**--The phase change of the 3.58-MHz color subcarrier introduced by the overall circuit or system, measured in degrees on a vectorscope, as the picture signal on which the subcarrier rides is varied from blanking to white level.

**DIFFRACTION LIMITED LENS**--A lens with aberrations corrected to the point that residual wavefront errors are substantially less than one-fourth the wavelength of the energy being acted on.

**DIFFUSION FILTER**--A filter designed to produce a fuzzy, fog-like effect on the image televised.

**DIGITAL IMAGE PROCESSOR**--A device in which the video image or raster is converted to a numerical array prior to processing. To convert the raster to a numerical array, the raster is first converted to an array of pixels. These may be actual sensor sites such as in a CCD imager or they may be sample points of an analog-to-digital converter system. The brightness or grey level of each pixel in the converted raster is represented by a digital number and the location of each pixel is defined by an address or index. This image conversion process allows unlimited manipulation of the video raster.

**DIGITAL IMAGE SYNTHESIS**--The process of creating a video image or raster from a digital array. Numbers in the array are defined as pixels. The grey level or brightness of each pixel is directly proportional to the numeric value which is stored as a byte or bytes of data at the memory address of each pixel. The memory address for each pixel converts to a unique geometric location in the video image or raster. The output of the digital array is applied to a digital-to-analog converter. Color pictures are usually synthesized as separate red, green and blue image arrays with each array being fed to a digital-to-analog converter.

DIRECTIONAL COUPLER--See DIRECTIONAL TAP.

DIRECTIONAL TAP--In CATV and Broadband LAN, a device that allows a band of frequencies to be paralleled or tapped off with a low loss (usually 0.5 dB) for monitoring and/or data or video insertion. Data or video signal is monitored or inserted using an RF carrier that is assigned within the frequency spectrum of the system, usually 5 to 400 MHz. Since inserted data or the original video signal travels back up the cable but cannot travel down the cable to other taps, it is a directional device. These devices are manufactured with different attenuation factors on the tap output to allow constant output regardless of where they are installed in the system. They are commonly labeled input, output and tap. Common configurations are one to eight tap outputs.

DISK RECORDER--A device that records video on a rotating ferrous-oxide coated disk. The video signal is recorded at either a field or a frame rate. Once recorded, the video can be played back at a field or a frame rate, one field or frame at a time.

DISPLACEMENT OF PORCHES--A term referring to any difference between the level of the front porch and the level of the back porch during the horizontal synchronizing interval.

DISPLAY PRIMARIES--The colors of constant chromaticity and variable luminance produced by the receiver or any other display device that, when mixed in the proper proportions, are used to produce other colors. See PRIMARY COLORS.

DISSOLVE--The effect produced by fading from one scene to another. The rate of fade or dissolve can be either fast or slow. The original image is faded out as the new image is faded in.

DISTRIBUTION AMPLIFIER--A device that provides several isolated outputs (usually four to six) from one looping or bridging input, and has a sufficiently high input impedance and input-to-output isolation to prevent loading of the input source. Devices that have cable equalization and dc restoration circuitry incorporated are referred to as clamping distribution amplifiers.

DISTRIBUTION COEFFICIENTS (Color)--The tristimulus values of monochromatic radiations of equal power.

DOC--See DROPOUT COMPENSATOR.

DOLLY--1. A platform or frame equipped with wheels or casters on which the tripod or pedestal supporting a television camera is mounted. 2. The act of moving a television camera mounted on a dolly either closer to or farther from a scene.

DOMINANT WAVELENGTH (Colored Light, Not Purple)--The wavelength of the spectrum light that, when combined in suitable proportions with specified achromatic light, yields a match with the light considered.

DOT BAR GENERATOR--A device used for measuring scan linearity and geometric distortion of television cameras and monitors that generates a specified output pattern of vertical and horizontal bars and dots. This pattern may be either white on a black background or black on a white background. Also used for converging CRTs.

DOT SEQUENTIAL--Sampling of primary colors in sequence with successive picture elements (pixels).

DOUBLE-CHAINING--The simultaneous use of two film chains to permit crossfading of audio and video signals to eliminate lip flap.

DOUBLE ZOOM--A zoom lens with a continuously variable extender which is used to increase the lens focal length.

DOWNSTREAM KEYS--A device for generating special effects that enables the user to insert or key over a composite video signal just before the signal is either recorded or broadcasted.

DRIP LOOP--In CATV, a loop placed in a coaxial cable so that water will drip off the cable rather than flow down it and damage electronic equipment.

DRIVE PULSES--See HORIZONTAL DRIVE and VERTICAL DRIVE.

DROP--In television production, either a large piece of canvas or other material used as a background.

**DROPOUT**--The loss of either a single or a series of horizontal lines during video recorder playback. Dropouts which are characterized by black or white streaks in the picture signal are usually due to dirty or defective tape or heads.

**DROPOUT COMPENSATOR (DOC)**--An electronic circuit incorporated into most video recorders and video processors to eliminate as many video tape dropouts as possible. A dropout is repaired by repeating the previous horizontal line.

**DUAL INTENSIFIED VIDICON (LLV)**--A standard vidicon image pickup tube of the direct readout type coupled with fiber optics to a two-stage intensifier to increase sensitivity over that of an intensified vidicon.

**DUB**--A copy of a video or audio tape made by recording the output of one recorder on another. A copy of a master tape (one with a video signal generated directly from a camera or graphics generator) is said to be a second-generation dub. Second-generation dubs are normally referred to as master tapes since video tape editing always results in a second-generation master. A copy of a second generation dub would be a third generation dub and so on. After three to six generations, the quality of the dub will start to deteriorate depending on the tape format and dubbing technique.

**DUB-DOWN**--The act of copying a video tape with a larger tape format to one with a smaller tape format. An example is copying a 2-inch quad tape to 3/4-inch helical tape.

**DUB-UP**--The inverse of dub-down. Dubbing up usually requires using a time-base corrector as the signal quality requirements on large format tape machines are more stringent. Anytime video tape is dubbed, a TBC should be used.

**DYNAMIC CONVERGENCE**--A combination of composite horizontal and vertical voltages used to ensure correct convergence of the three beams of a tri-color picture tube over the entire surface of the phosphor-dot faceplate. Dynamic convergence controls are normally accessible to the monitor operator for adjustment and usually consist of red-green horizontal, red-green vertical, and blue horizontal.

**DYNAMIC MICROPHONE**--A microphone designed with the diaphragm connected to a moving coil which creates an electrical current by its motion within a magnetic field. Dynamic microphones are medium impedance devices and are far superior to carbon microphones.

**DYNAMIC RANGE**--The difference between the maximum acceptable signal level and the minimum acceptable signal level.

ECHO--A signal which has been reflected at one or more points during transmission with sufficient magnitude and time difference to be detected as a signal distinct from that of the primary (original) signal. Echoes can be either leading or lagging the primary signal and appear as reflections or "ghosts." (For audio, see REVERBERATION.)

ECU--Abbreviation for extreme close up.

EDGE KEY/WIPE--An effect created by either a wipe or a key in which edges are electronically produced to make the key material appear more prominent on the raster.

EDIT PROGRAMMER--A device that automatically produces a video tape edit at a predetermined edit point as it controls the operation of both the playback and record video recorders.

EIA--Abbreviation for Electronics Industry Association. For copies of publications write to EIA Engineering Dept, 2001 I St. NW, Washington, D. C. 20006.

EIA SYNC--The signal used for the synchronizing of television scanning specified in EIA Standards RS-170 (the standard monochrome format), RS-170A (NTSC broadcast standard), RS-330, RS-343, or subsequent issues.

EFFECTS BUS--The various components of a video production switcher that control such electronic effects as wipes, keys, mattes, and inserts.

EFP/ENG--Abbreviations for Electronic Field Production/Electronic News Gathering. The common terms used for television production equipment designed to be portable and weatherized for outdoor use. The EFP systems are supposed to be of better quality than ENG systems. Most ENG systems will include a microwave for relaying live video.

**ELECTRON BEAM RECORDING**--The process for recording the information contained in a modulated electron beam on photographic or silicon resin-coated material. A direct recording method involves the passage of the recording medium through an aperture in the CRT or over a metallic window on its surface. Indirect recording methods are accomplished by photographing the phosphor image projected by the CRT and by the use of optical fibers which are used to transmit the phosphor image to a contact printer.

**ELECTROSTATIC FOCUSING**--A method of focusing the CRT beam to a fine spot by the application of electrostatic potentials to one or more elements of an electron lens system.

**ELLIPSOIDAL SPOTLIGHT**--A lighting instrument which produces hard, directional light. Internal shutters permit distribution control, and a pattern slot enables the ellipsoidal to project shadow patterns.

**EMISSIVITY**--The ratio of the radiance emitted by a source to the radiance emitted by a blackbody radiator at the same temperature emitting the same wavelength.

**ENCODER**--1. In video metrics, a device or devices that insert binary data in either the vertical or horizontal interval of the television signal. The data inserted is typically time (IRIG B, C), azimuth and elevation pointing angles, tracking errors, event counts, and special event marks. 2. In NTSC broadcast television, a device which inserts test patterns into the vertical interval on lines 17-19 to calibrate station equipment. 3. A device for transforming the three primary camera colors (RGB) into a phase related subcarrier (3.58 MHz). See COLOR ENCODER and VIE.

**ENG**--See EFP/ENG.

**ENHANCEMENT**--The process of improving the various characteristics of a picture signal or system. Enhancement comprises two major elements: visual or image enhancement and signal or detail enhancement. Visual enhancement is done to improve the image appearance as it is perceived by the human eye. An example of an image enhancer is a device by which the frequency (constant) elements of the television picture are nulled to amplify the high frequency (difference) elements. The television picture is then reassembled, resulting in a crisper looking picture. Signal enhancement is done to remove degradations that affect either the visual or electronic characteristics of a picture signal. Devices that provide signal enhancement convert the analog picture signal to a digital format to manipulate the picture signal size, time, color, detail, and noise on a bit-by-bit or pixel basis. Upon completion of the desired effects, the signal is converted back to analog. This conversion is done for every field of video or picture signal applied to the input of the device.

**ENVIRONMENTAL HOUSING**--A dust- and moisture-proof enclosure used to protect the television camera from the environment or from vandalism which has a viewing window at one end and a sealed cable entry at the other. In some cases such as explosives handling, the housing is designed to protect the camera from the environment. Some models feature pressurization, heaters, windshield wipers, and air conditioners.

**EQUAL ENERGY SOURCE (Light)**--A light source from which the emitted power per unit of wavelength is constant throughout the visible spectrum.

**EQUALIZER**--1. In television, an electronic circuit that introduces compensation for the frequency discrimination effects of elements within a television system. It is used in most clamping amplifiers. 2. In audio, a device that permits a sound signal to be manipulated by varying specific frequencies to produce a desired sound quality.

**EQUALIZING PULSES**--In the standard television signal, pulses at twice the horizontal line frequency occurring just before and just after the vertical sync pulse. They minimize the effect of the horizontal line frequency pulses on interlacing by causing the vertical deflection to start at the same time for each field.

**EQUIVALENT BACKGROUND ILLUMINATION (EBI)**--The light emissions present on the output screen of an image intensifier when the photocathode is not exposed to illumination. The EBI divided by the intensifier gain represents the photocathode input illumination required to generate an equivalent output in an ideal intensifier. This output is normally expressed in lumens per square centimeter.

**ESSENTIAL AREA**--1. In television, the area of the television picture which is sure to be received by all television sets. 2. In graphics, the area where the important visual and lettering information must be positioned to ensure its reception by all viewers.

**ESTABLISHING SHOT**--The opening shot of a video production which orients the viewer to the main subject matter of the production; normally a wide-angle view.

**ETV**--Abbreviation for Educational Television.

**EVEN FIELD**--In an interlaced scanning system, the television field containing all the even lines which begins with a partially blanked horizontal scan line and ends on completion of the last horizontal scan line. In NTSC, there are 262 lines to the even field with a half line preceding the first line scanned.

**EYE LIGHT**--Illumination used to produce a specular reflection from the eyes and/or teeth without significantly increasing illumination of the subject.

**EXCITATION PURITY (Light)**--The ratio of (1) the distance from the reference point representing the sample to (2) the distance along the same straight line from the reference point to the spectrum locus or to the purple boundary; both distances being measured (in the same direction from the reference point) on the CIE chromaticity diagram.

**EXPLOSION-PROOF HOUSING**--An environmental enclosure designed specifically for operation in an explosive environment. Typical units are pressurized, and the cable entry points are sealed with explosive rated sealants and couplings.

-F-

FADE--The gradual change of the amplitude or contrast of a video or audio signal. Common usage, 'fade to black.'

FADER--A control or group of controls for effecting fade-in (gradual increase in amplitude) and fade-out (gradual decrease in amplitude) of video or audio signals.

FADER BAR--Two ganged levers on a video production switcher which control the outputs of two video sources. They are used to produce fades, dissolves, supers, split screens, and wipes.

FALLOFF--The degree with which light goes from full intensity on a subject to black. Falloff can be either rapid or slow depending on the lighting situation.

FAR INFRARED RADIATION--Radiation composed of wavelengths having a spectral position of 10 to 2000 micrometers. This spectrum is below visible light and above microwave.

FAR ULTRAVIOLET RADIATION--Radiation composed of wavelengths having an electromagnetic spectral position of 0.2 to 0.3 micron.

FC--See FOOTCANDLE.

FCC--Abbreviation for the Federal Communications Commission. The governmental agency responsible for regulating the use of electromagnetic radiation in both content and quality.

F FITTING--A coaxial connector common to the CATV industry which is designed to fit quickly to RG-59 coaxial cable by a quick crimp fit using the center conductor of the cable as a mating pin. The fitting screws into the mating connector.

**FIBER OPTICS**--Also called optical fibers or optical fiber bundles. An assemblage of transparent glass fibers, all bundled together, parallel to one another which are used for transmitting light from one surface or device to another surface or device. Fiber optic cables may be either coherent (capable of transmitting images) or noncoherent (capable of transmitting light only).

**FIBER OPTIC CABLE**--See FIBER OPTIC TRANSMISSION.

**FIBER OPTIC FACEPLATE**--A plate made up of thousands of glass fibers arranged parallel to one another in a honeycomb design.

**FIBER OPTIC FIELD FLATTENER**--A first surface plate consisting of fused optical fibers with both surfaces ground and polished. The entrance surface is curved to match the image curvature of the input system. This match allows the plate to transmit light to the flat exit surface.

**FIBER OPTIC TRANSMISSION**--A system in which information is conveyed over thin glass fibers (called a fiber optic cable when the fibers are bundled and covered with a protective coating) via light energy. The current wavelengths of light used center on 0.8, 1.3 and 1.5 microns. This system has many advantages and is expected to dominate the communications industry as it is used to replace existing wire cables.

**FIDELITY**--The degree to which a system or subsystem accurately reproduces at its output the essential characteristics of the input signal.

**FIDUCIAL (POINT)**--Either fixed or true reference marks or points placed in the field of view of an optical system to provide a basis of measurement. See CROSS HAIR.

**FIELD**--One of two equal parts into which a television frame is divided in an interlaced system of scanning. One field is composed of all odd horizontal lines while the other is composed of all even horizontal lines.

**FIELD BLANKING**--See VERTICAL BLANKING.

**FIELD FREQUENCY**--The number of fields transmitted per second in a television system. The U.S. standard rate is 60 fields per second. Also called field repetition rate.

**FIELD LENS**--Lens used to effect the transfer of the image formed by an optical system.

**FIELD OF VIEW**--The maximum angle of view that can be seen through the lens of any television camera. It is normally expressed in either degrees or ratios and is a function of the lens focal length and the distance from the lens to the subject.

**FIELD RATE**--See **FIELD FREQUENCY**.

**FIELD SEQUENTIAL**--Sampling of primary colors in sequence with successive television fields.

**FILL LIGHT**--A lighting instrument that is used to lighten or eliminate shadows created by the key light.

**FILM CHAIN**--An equipment arrangement in which one or more film projectors and a 35mm slide projector are directed in turn to provide an image to a television camera.

**FILTER**--A device or material either transparent, colored, polarized, of neutral density, or any combination that is used to absorb light according to wavelength. Filters are classified by density and hue according to various manufacturers' numbering systems.

**FINE CHROMINANCE PRIMARY**--See **'I' SIGNAL**.

**FIRST GENERATION**--See **DUB**.

**FISHEYE LENS**--An extremely wide angle lens which produces 180° in its field of view.

**FIXED LENS**--1. In television, a lens that has no zoom capability. 2. A lens set at a fixed position (hyperfocal point) that, within the limits of the definition of the lens, allows a sharp reproduction of the subject from infinity to the closest point of focus.

FL--See FOOTLAMBERT.

FLAGGING--The effect in the television raster where straight lines at the top of the picture fluctuate back and forth which is caused by misalignment of the dihedral on helical scan video recorders.

FLARE--In television, dark or colored streaks in the picture which can be caused by a very bright specular reflection in the scene being televised.

FLAT--1. In television production, a backdrop section on which scenery is painted or printed. Flats are usually constructed of cardboard, paper, plastic, styrofoam, or other lightweight materials. 2. A picture lacking appreciable contrast.

FLAT LIGHTING--Lighting characterized by even, diffused light without shadows or contrast.

FLATNESS OF FIELD--Appearance of the image to be flat. The plane in the object being viewed is imaged as a flat surface.

FLIP CARD--See CAMERA CARD.

FLIR--See THERMAL IMAGING.

FLOODING THE BEAM--The act of focusing a fresnel spotlight to flood position to widen the beam distribution and reduce intensity.

FLOODLIGHT--A lighting instrument with a wide aperture light which produces flat, diffused illumination over a wide area.

FLUOROSCOPY--In television, the application of a television camera enhanced to view a fluorescent X-ray. Produces a brighter and sharper display that can then be viewed on television monitors or videotaped on standard video recorders.

FLUTTER--See WOW AND FLUTTER.

FLYBACK--1. The rapid return of the beam in a CRT in the direction opposite to that used for scanning. 2. The term for the horizontal flyback transformer used to generate high voltage in television monitors.

F NUMBER--See F/STOP.

FOCAL LENGTH--In optics, the distance from the focal point or plane to the optical center of the lens. Focal length determines the scale of the image. The longer the focal length, the larger the image appears. Focal length is measured in millimeters and is expressed as  $f$  ( $f = 90\text{mm}$ ). This expression should not be confused with the  $f/\text{stop}$ .

FOCAL PLANE--A plane (through the focal point) which is at right angles to the principal axis of a lens. That surface on which the sharpest image is formed.

FOCAL POINT--The point at which a lens or mirror will focus parallel incident radiation.

FOCUS--1. The point at which light rays or an electron beam form a minimum-size spot. 2. The action of bringing either light or electron beams to a fine spot by use of mechanical or electronic devices.

FOOTCANDLE--See LUMEN/FT<sup>2</sup>.

FOOTLAMBERT (FL)--A unit of luminance equal to  $1/\pi$  candela (candle) per square foot or to the uniform luminance at a perfectly diffusing surface emitting or reflecting light at the rate of one lumen per square foot. A lumen per square foot is a unit of incident light and a footlambert is a unit of emitted or reflected light. For a perfectly reflecting and perfectly diffusing surface, the number of lumens per square foot is equal to the number of footlamberts.

FORMAT--The method by which video signals are placed on magnetic tape. Some common tape formats are U-matic; VHS; Beta-max; formats A; B; and SMPTE-C. (Refer to Broadcast Standards).

**FRAME**--The total area occupied by the television picture which is scanned while the picture signal is not blanked. In an interlace standard it consists of two fields.

**FRAME FREQUENCY**--The number of frames scanned in 1 second. The U.S. standard is 30 frames per second.

**FRAME PULSE**--In some video recorders, a pulse superimposed on the control track signal to identify the longitudinal position of a video track containing a vertical sync pulse. It is used to align the television picture so that the noise bar does not appear on the the raster during freeze frame.

**FRAME RATE**--See **FRAME FREQUENCY**.

**FRAME SYNCHRONIZER**--A device that digitizes a video composite signal to separate the signal into its components (sync, blanking, video). Once separated, new sync can be added and missing video lines can be reconstructed. Most frame synchronizers compare the video signal line by line and if a horizontal line is missing, the picture information is reconstructed from the picture information on lines preceding and following the missing line or lines. This device also removes time base errors from any video source and in most cases will provide digital image enhancement.

**FREEZE FRAME**--The act of stopping the action in a video frame or field. This can be done with a slow motion disk, a still frame/field storage unit, a frame synchronizer with frame store, or by some video recorders.

**FREQUENCY INTERLACE**--In television, the effect of the intermeshing of the frequency spectrum of a modulated color subcarrier and the harmonics of the horizontal scanning frequency for the purpose of minimizing the visibility of the modulated color subcarrier.

**FREQUENCY RESPONSE**--In television, the frequency range, usually in MHz, of either the equipment or system used. Frequency response is also measured in lines of resolution. To convert, multiply the frequency range (the difference between the high and low frequency) in MHz by a factor of 80. A frequency response of 4.2 MHz equals  $4.2 \times 80$  which is 336 lines of resolution.

FRESNEL--A unit of frequency equal to  $10^{12}$  cycles per second.

FRESNEL SPOTLIGHT--A lighting instrument employing a lens with concentric circles impressed in its surface to produce a beam of hard directional light which can be varied from spot to flood. The most commonly used lighting instrument in television production.

FRONT PORCH--That portion of a composite picture signal which lies between the leading edge of the horizontal blanking pulse and the leading edge of the corresponding sync pulse.

F/STOP--Also called F Number and F System, the ratio of the equivalent focal length of a lens to the diameter of its entrance pupil. It refers to the speed or ability of a lens to pass light. The f/stop is calculated by dividing the focal length of the lens by its diameter. Television lenses usually have f/stops of f2.8, f5.6, f8, f11, f16, and f22.

FUSION FREQUENCY--In television, the frequency of retinal images above which differences in luminosity or color are no longer perceptible.

-G-

G--The green component of an RGB component analog video system.

GAIN--1. In audio systems, gain means volume. 2. In video systems, the term means contrast.

GAFFER TAPE--Strong, all purpose tape used to temporarily secure audio and video cable, equipment, set pieces, and for many other applications.

GAMMA--A numerical value of the degree of contrast in a television picture, which is the exponent of the power law that is used to approximate the curve of output magnitude versus input magnitude over the region of interest.

GAMMA CORRECTION--The insertion of a nonlinear output-input characteristic to change the system transfer characteristic of the color amplification circuits in television cameras.

GATED IMAGING DEVICE (GATED VIDEO CAMERA)--A photo-sensitive device whose image intensifier circuit is turned on and off or gated at a selected rate. The image intensifier is located between the lens image plane and the imaging device (vidicon, CCD, CID). Gated video cameras are capable of image capture exposure times (freeze field) of less than 100 nanoseconds.

GATING--In intensified video cameras, the method of enabling and disabling the image intensifier via element bias changes. In Gen II, micro channel plate (MCP) intensifiers, the photocathode is biased positive relative to the MCP input surface to disable or turn off the intensifier.

GEL--Colored plastic or gelatin material which is mounted in front of lighting instruments to produce colored light.

GENERATION--See DUB.

GEN-LOCK--The act of locking the frequency of an internal sync generator to an external source.

**GEOMETRIC DISTORTION**--The distortion of a picture signal in which the geometric characteristics of the objects in the reproduced picture are in improper proportion to their original shape. This is normally the result of the imperfections in the physical configuration of the CRT or camera lens.

**GHOST**--A spurious image or images resulting from an echo or echoes of the video or RF signal during cable or broadcast transmission.

**GLITCHES**--A form of low-frequency interference appearing as a narrow horizontal bar moving vertically through the picture. Also observed on an oscilloscope at field or frame rate as an extraneous voltage pip moving along the signal at approximately reference black level.

**GOBO**--A foreground set piece that has been designed for the camera to shoot through.

**GRAPHICS**--The term for all the visuals prepared either for a production or display of events. Includes camera cards, slides, electronically generated letters, symbols, scenes, and special graphics set pieces created either electronically or physically.

**GRAY SCALE**--An optical pattern in discrete steps between light and dark. The graduations approximate the tonal values of the original image. See **STAIRSTEP**.

**GROUND ROW**--A curved set piece positioned in front of a cyclorama to increase the perception of depth and to hide cyc strip lights from the camera view.

-H-

H--Abbreviation for Horizontal.

HALATION--A glow or diffusion that surrounds a bright spot on a television picture tube. If it is present, there is a defect in the picture tube.

HALO--The appearance of a black border around unusually bright objects in a televised area.

HALOGEN LAMP--See QUARTZ LAMP.

HARD KEY--A key or insert with distinctive borders around the edges of the key.

HARD LIGHT--Light quality characterized by a strong directional beam which results in dark shadows in areas not directly illuminated. Hard light is produced by spotlights.

HARDWALL FLAT--A flat with a wooden surface.

HDTV--See HIGH DEFINITION TELEVISION.

HEAD END--In CATV, the main transmission and receive source for the system. Broadcast channel conversion and channel assignments are done at the head end.

HEADROOM--The space between the top of a subject's head and the edge of the viewable raster.

HELICAL SCAN (HELICAL VTR)--A method of recording video signals on magnetic tape. The tape travels diagonally to the head which is rapidly rotating, resulting in a slant line record on tape. Typical frequency response of this system is 4.5 to 5 MHz for 1-inch formats, 3.5 to 4 MHz for 3/4-inch formats, and 2.5 to 3.5 MHz for 1/2-inch formats.

**HETERO-JUNCTION**--In television image pickup tubes, a diode-type target structure.

**HIGH BAND**--A video tape recording technique which uses high frequency signals to produce higher quality video. High band recording increases the number of dub generations before a significant reduction in quality occurs.

**HIGH CONTRAST IMAGE**--A picture in which strong contrast between light and dark areas is very visible. Intermediate values, however, may be missing.

**HIGH DEFINITION TELEVISION (HDTV)**--The television scanning system that has been proposed to replace NTSC television. It consists of 1125 horizontal lines with a 60-Hz vertical rate and an aspect ratio of 19:6. The CCIR is expected to adopt the above as an international standard. The broadcast format proposed is S-MAC with initial broadcasts occurring on CATV and satellite. The signal quality is magnitudes better than NTSC in resolution, color and freedom from frequency distortion. Since there is no compatibility to NTSC, no one is even speculating on how long it will take HDTV to totally replace the NTSC broadcast standard.

**HIGH FREQUENCY DISTORTION**--In television, distortion effects which occur at frequencies above the 15.75-kHz horizontal line frequency.

**HIGH KEY**--A lighting approach characterized by light or faint shadows with relatively even illumination of a subject or scene.

**HIGHLIGHT(S)**--The maximum brightness of the television picture which occurs in regions of highest illumination.

**HIGH RESOLUTION MONITOR**--In general terms, a television or graphics monitor capable of displaying scan rates in excess of 525 lines. Typically, these monitors require RGB inputs since their source signal has not been encoded.

**HIGH-Z**--The term for a high impedance microphone. High-Z microphones are rarely used in television production work.

**HMI LAMP**--A gas-filled lamp that produces a high efficiency light output with a marked reduction in heat. The color quality of this lamp is daylight balanced.

HOMING SWITCHER--See SEQUENTIAL SWITCHER.

HORIZONTAL (HUM) BARS--Relatively broad horizontal bars, alternately black and white, which extend over the entire picture. They may be stationary or may move up or down. They are caused by the 60-cycle power frequency adversely affecting the video signal through poor grounding or by having equipment on different power buses.

HORIZONTAL BLANKING--Blanking of the picture during the period of horizontal retrace. See BLANKING.

HORIZONTAL DEFINITION--See HORIZONTAL RESOLUTION.

HORIZONTAL DELAY--See PULSE CROSS.

HORIZONTAL DRIVE--A pulse used in television systems whose leading edge is coincident with the leading edge of the horizontal sync pulse and whose trailing edge is coincident with the leading edge of the burst flag pulse. In NTSC, pulse amplitude is 4 volts into a 75-ohm termination.

HORIZONTAL FREQUENCY--See LINE FREQUENCY.

HORIZONTAL INTERVAL ENCODING (HIE)--See ENCODER.

HORIZONTAL PHASE--The adjustment of a video signal in the horizontal direction. The picture signal being received by a monitor is adjusted so that its starting time equals the starting time of the raster display.

HORIZONTAL RESOLUTION--Also called horizontal definition, the number of individual picture elements (pixels) that can be distinguished in a horizontal scan line. It is usually expressed as the number of distinct vertical lines, alternately black and white, which can be seen in three-fourths of the width of the raster.

HORIZONTAL RETRACE--The return of the electron beam from the right to the left side of the raster after the scanning of one line.

HORIZONTAL SYNC--The sync pulse that locks each horizontal line in the raster. See SYNC SIGNAL.

HOT--Slang for the equipment is on or power is applied.

HOTSPOT--An extremely bright concentration of light in one place relative to the surrounding illumination which can result in streaking or shading problems.

H-RATE/TIME--The time required to scan one horizontal line including the trace and retrace time.

HUE--The attribute of visual sensation representing the color of an object. It is the redness, blueness, greenness of an object. The hue is the actual color. White, black and tonal shades of gray are not hues.

HUM--Electrical disturbance of the aural or visual signal at the power supply frequency or harmonics of the signal. See HORIZONTAL (HUM) BARS.

HYPERFOCAL POINT (LENS)--See FIXED LENS.

**I** SIGNAL--The color component used in an NTSC system to modulate the color subcarrier at a phase  $57^\circ$  removed from the burst reference phase. This signal is capable of reproducing the range of colors from orange to cyan (bluish-green).

IEEE--Abbreviation for Institute of Electrical and Electronic Engineers. For publications write to: IEEE Service Center, 445 Hoes Ln, Piscataway, NJ 08854.

ILLUMINANCE--1. Luminous flux incident per unit area of surface; luminous incidence. 2. In nonoptical terminology, a source of light.

ILLUMINATION--See LUMEN/FT<sup>2</sup>.

IMAGE BURN--See RETAINED IMAGE.

IMAGE COMPRESSION--The special effect in which a full frame image can be compressed to any desired size and then located at any point in the viewable raster. The ability to generate this effect requires a digital processor with frame store.

IMAGE ENHANCER--A device used to enhance the visual aspects of a television signal. See ENHANCEMENT.

IMAGE INTENSIFIER--A device coupled by fiber optics to a television image pickup tube to increase sensitivity. Can be single or dual stage.

IMAGE ISOCON--A television image pickup tube of the return beam type with high sensitivity. Characterized by low blooming, high resolution, low lag, and large intrascene dynamic range. Suitable for low light applications.

IMAGE-ORTHICON (I-O)--An early model image pickup tube. I-O cameras were 35mm format. The invention of the Plumbicon resulted in their demise.

**IMAGE PICKUP TUBE**--An electron tube which reproduces on its fluorescent screen an image of an irradiation pattern incident on its photosensitive surface.

**IMAGE PLANE**--The plane or surface upon which an image is formed at right angles to the optical axis.

**IMAGE PROCESSOR**--See DIGITAL IMAGE PROCESSOR.

**IMAGE RETENTION**--See BURNED-IN IMAGE.

**IMPEDANCE**--The reactance of electronic circuits to current flow which is measured in ohms and is expressed as Z. Resistance, capacitance and inductance provide reactance to ac current flow. Television equipment must be properly terminated for impedance matching. Impedance is very critical in broadband distribution systems and a major factor in audio systems. Most of the professional audio microphones used in television are either of low or medium impedance to accommodate long cable runs without a reduction in audio quality.

**INCIDENT LIGHT**--The light that falls directly on an object. To measure incident light, a light meter reading is taken from the position of the subject with the meter facing toward the camera and light source.

**INFRARED RADIATION SOURCE**--Any object that emits radiation at a wavelength between 7000 to 100,000 Angstroms. A calibrated source is normally a heated blackbody or filament lamp that is rated in either watts or ergs per second of radiation incident on a surface at a specified distance.

**INLINE GUN**--The technique used to manufacture color television CRTs in which the RGB cathode emitters are configured one in front of the other. The beams are separated using magnetic deflection. Correction voltages are not required to converge the RGB beams. This type of CRT is replacing the delta gun-type CRT because of its stability and easier convergence.

**INPHASE SIGNAL**--See 'I' SIGNAL.

INSERT EDIT--The act of electronically editing video tape by inserting video, audio or both signals into a previously recorded tape without disturbing either video or audio signal before and after the insert. Insert editing uses a prerecorded control track to produce very stable edits.

INSERT KEY--See CHROMA KEY.

INSERT REEL--See B-ROLL.

INTENSIFIED VIDICON (IV)--A standard vidicon type television image pickup tube of the direct readout type coupled with fiber optics to an intensifier to increase sensitivity.

INTERACTIVE VIDEO--The term for an electronic system that uses computer and video technology to teach the operator a skill or technique. The operator or student makes a decision on a computer terminal prompted either by the terminal or a scenario appearing on a television monitor. The results of the decision are then displayed as a scenario on the television monitor with evaluation and further choices displayed on the computer terminal. The television media is commonly videodisk. Video recorders are used in systems requiring constant update.

INTERCOM--The acronym for intercommunication system. In television, the internal communication system using telephone headsets for communication between the crew members and the control room.

INTERLACE(D) SCANNING--A scanning process in which the distance from center to center of successively scanned lines is two or more times the nominal line width with the adjacent lines belonging to different fields. Interlaced scanning is expressed as a ratio of fields to frame. The NTSC broadcast standard is an interlace ratio of 2:1. Interlacing reduces picture flicker.

INTERLINE TRANSFER--The commonly accepted technique for scanning a CCD image device being used for television imaging. Pixels are transferred directly to a register that parallels the photon sensitive elements. The interline registers are then down loaded to a frame storage buffer during vertical time interval.

IN THE CAN--Slang for completion of all editing on a video production.

IN THE MUD--Slang for a signal too low in amplitude to maintain effective transmission. It is commonly used when referring to low level audio signals.

INTRASCENE DYNAMIC RANGE--The useful television camera operating light range from highlight to shadow in which detail can be observed in a static scene when both highlights and shadows are present. Highlights are determined by blooming limits or similar image quality criteria. Shadow is defined as the minimum illumination required for visual perception. Intrascene dynamic range is normally expressed as a ratio of minimum to maximum input illumination intensity as measured in footcandles.

ION SPOT--A spot on the phosphor surface of a CRT which is somewhat darker than its surrounding area because of bombardment by negative ions. This spot has a lower sensitivity.

ION TRAP--An arrangement of magnetic fields and apertures which will allow an electron beam to pass through while obstructing the passage of ions.

IPS--Abbreviation for inches per second, the speed at which video and audio tapes pass over a recording device's magnetic heads.

IR--Abbreviation for Infra-Red.

IRE--Abbreviation for Institute of Radio Engineers. The IRE merged with the American Institute of Electrical Engineers (AIEE) to form the IEEE in 1963.

IRE SCALE--A scale of measurement for a 1-volt peak-to-peak television signal outlined in IRE Standard 23S-1. This scale divides the signal into 140 units. Most waveform monitors are calibrated and/or displayed in these units.

IRIS--A device in a lens system for varying the effective aperture of the lens. See APERTURE.

IRIS EFFECT The result of gating on an image intensifier for a time interval that is less than the intensifier internal charge propagation delay. The effect appears as an underexposed center in the displayed image.

IRRADIANCE--Radiant light flux that is illuminating an object incident per unit area of surface. Also called radiant incidence.

ISIT (INTENSIFIER SILICON INTENSIFIER TARGET)--Trade name for a television image pickup tube of the direct readout type designed for extremely low-light applications. Essentially an SIT tube with an additional intensifier fiber optically coupled to provide increased sensitivity.

ISOLATION AMPLIFIERS--An amplifier with input circuitry and output circuitry designed to eliminate the effects of input signals deviations upon the output and the output signals deviations upon the input.

ISOLATED CAMERA--A camera used to record images on a video recorder while still in a multiple camera video mix. Provides additional footage for post-production editing.

IVC--The video tape format of 1-inch helical scan recorders built by International Video Corporation. Although the company closed its doors in 1983, equipment still in use is being supported by Cezar Industries.

IVT--See INTERACTIVE VIDEO.

-J-

JITTER--Instability of a signal in either its amplitude or its phase or both because of disturbances or changes in supply voltage, temperature or circuit characteristics.

JOG--In television, the act of slowly moving a videotape back and forth to locate a precise edit point.

JOYSTICK--A hand-operated control that allows 360° positioning by the operator. It is used on effects switchers to position a cutout insert and by some video tape edit programmers to control the operation of the associated recorders and players. Also used on audio consoles to pan a sound channel when mixing stereo. Pan and tilt units can also be controlled by a joystick.

JUMP CUT--An unnatural or jarring transition between two camera views.

-K-

KELVIN (K)--The unit of measurement used to indicate the relative color temperature of a light source. Natural sunlight has a color temperature of 3200° Kelvin.

KEY--The effect of inserting a portion of one video image into another video image. The insert or key can be a spot, square, lettering, or a neutral background used to provide a key for fill-in background video image.

KEY CAMERA--A television camera, usually monochrome, that is set to view a neutral background for keying in background fill. This effect is commonly used during the weather report section of most news programs.

KEY LIGHT--The main source of illumination for either a scene or subject.

KEystone--1. Visual distortion caused by a camera that is not at a perfect right angle to the surface of the object being televised. 2. A piece of plywood used to reinforce the joints of a flat frame.

KEystone DISTORTION--1. The keystone-shaped raster produced by scanning in a rectilinear manner with constant amplitude sawtooth waves. 2. A plane target area which is not normal to the average direction of the beam, but appears as a narrowing of the raster at the top or the bottom.

KICKER LIGHT--A light positioned at the rear and to the side of a subject being illuminated.

KINESCOPE--A device or setup for recording the output of a television monitor on either slide or motion picture film.

LAG--In a television pickup tube, an electrical charge image that persists for two or more frames after excitation is removed. Lag causes the image to smear as either the image or camera moves fairly rapidly.

LAMBERT--A unit of luminance equal to  $1/\pi$  candle per square centimeter and therefore equal to the uniform luminance of a perfectly diffusing surface emitting or reflecting light at the rate of one lumen per square centimeter.

LAN--An abbreviation for Local Access Network. In a Broadband LAN, a network that uses bi-directional CATV technology for either television, data or voice communication or any combination in a defined geographical area.

LAP--In television, the term used by production personnel to request a super over the video that is currently being recorded or transmitted.

LASER DISK RECORDER--A disk recording device that stores information as a series of optically detectable spots. These spots are very small and are read by a focused laser beam and sensor system. Since the readout or playback requires no contact between the sensing device and the disk, the system has a high degree of longevity. Information may be stored in either an analog (picture) or digital format.

LAVALIER MICROPHONE--A small microphone designed to be worn on the subject which is usually clipped to a tie, lapel or blouse.

LEAD-OXIDE TUBE--A television pick-up tube of the direct readout type having a photo-conductive target of lead oxide. Widely used in broadcast and studio color television cameras. It has high sensitivity, low dark current, unity gamma, low lag, uniform shading, and good temperature stability. An example is the Amperex Plumbicon.

LEFT-EDGE ENCODING--One of two standard methods adopted by the RCC/OSG for encoding, tracking and engineering data into a video signal. See Range Commanders Council document number 452-86, Video Standards and Formats.

LEKO--See ELLIPSOIDAL SPOTLIGHT.

LENS--A transparent optical component consisting of one or more pieces of optical grade glass with surfaces so curved (usually spherical) that they serve to either converge or diverge the transmitted light rays from an object, thus forming a real or virtual image of that object.

LENS FORMAT--The system of measurement used to indicate the size of the image pickup tube faceplate in reference to the size lens that can be used. There are three basic formats: a 35mm for an I-0, a 16mm for 1 1/4- and 1-inch tubes, and a 16mm for 2/3-inch tubes. One-inch tubes have a larger field of view and, in most cases, better resolution than 2/3-inch tubes.

LENS SPEED--The ability of a lens to transmit light; represented as the ratio of the focal length to the diameter of the lens. A fast lens would be rated  $f/1.4$ , a much slower lens might be designated as  $f/8$ . The larger the  $f$  number, the slower the lens.

LENS SYSTEM--Two or more lenses arranged to act in conjunction with one another.

LENSLESS SPOTLIGHT--A lightweight, portable lighting instrument designed to produce hard directional light without a spotlight. Useful for remote applications.

LID (LINEAR IMAGING DEVICE)--A CCD sensor configuration with the sensor elements arranged on a long narrow chip. Typical configurations are 256, 1024 and 1728 elements. Commonly used in facsimile machines and spectrometers.

LIGHT--Electromagnetic radiation detectable by the eye, ranging in wavelength from about 400 to 750 nanometers.

LIGHT METER--A meter designed to read light intensity using either reflected or incident light. Most light meters used in television have footcandle scales.

LIGHT PLOT--A floor plan showing the studio set drawn to scale with the lighting instruments that are to be used superimposed to indicate location and function.

LIGHT RATIO--The relative intensities of various light sources such as key, back or fill lights.

LIMBO--1. In television, an area with a completely neutral background which gives the illusion of endless distance. 2. A lighting approach in which the background is a light gray to black with the foreground subject prominent in the picture. See CAMEO.

LIMITING RESOLUTION--A measure of resolution that is usually expressed in terms of the maximum number of lines per picture height discriminated on a test chart. For a given number of lines  $N$ , the width of each line is  $1/N$  times the picture height. See RESOLUTION.

LINE--The acronym for horizontal line. Also the master video monitor which displays the scene being recorded or broadcast.

LINE AMPLIFIER--An amplifier for audio or video signals that feeds a transmission line, which in broadcast television, goes to the transmission site. Also called a program amplifier.

LINEARITY--1. The state of an output that incrementally changes directly or proportionally as the input changes. 2. In television display devices, linearity is the geometric ratio of distortion introduced by the contour of the CRT and its glass envelope. Average linearity is 2 percent.

LINE BLANKING--See HORIZONTAL BLANKING.

LINE FREQUENCY--The number of horizontal scan lines in one second. In NTSC, the line frequency is 15,750 lines per second for monochrome and 15,734 lines per second for color.

LINE NUMBER--The number assigned to one horizontal scan line. In NTSC, there are 525 lines per frame which are divided into two fields of 262.5 lines each. VIT or VIE is usually done on lines 17 through 20 which fall within the vertical blanking interval. See ODD FIELD and EVEN FIELD.

**LINES OF RESOLUTION (Television)**--A method of measuring the frequency response of a television device based on the visual response standards of RETMA line charts. Since no lines actually exist, fictitious horizontal lines of resolution were created to have something to compare to the actual vertical scan lines. To convert lines of resolution to frequency, divide the number of lines by 80. The answer is the frequency response in MHz. For example, 240 lines of resolution equal 240 divided by 80 or 3 MHz of frequency response. See LIMITING RESOLUTION.

**LIP FLAP**--Movement of a subject's lips in a video picture without accompanying sound.

**LIP SYNC**--1. The synchronization of sound and picture during recording and editing. 2. The act of an individual mouthing the words to a pre-recorded tape.

**LIVE**--1. In television, either a program or event that is being broadcast in real time. 2. Slang for any equipment that is turned on and in use.

**LLTV**--Also LLIV TV. Abbreviation for low-light television which is the name given to CCTV systems capable of operating with scene illumination of less than 0.5 lumens/square foot.

**LM**--See LUMEN.

**LOGO**--A symbol used to identify a company, activity, project, or station. A logo is usually a graphic.

**LONGITUDINAL TIME CODE**--The method employed by broadcast quality video recorders for inserting a time code over pre-recorded video without degrading said video. The inserted time code is used for editing and cuing video tapes.

**LONG SHOT**--See ESTABLISHING SHOT.

**LOOK SPACE**--The act of composing a subject so that the television picture compensates for the psychological impression given when the subject is looking towards the edges of the television frame.

LOOP THROUGH--Also called looping, the method of feeding a series of high impedance circuits (such as multiple monitors in parallel) from a pulse or video source with a coaxial cable transmission line so the line is bridged (with minimum length stubs) and the last unit properly terminates the line in its characteristic impedance (usually 75 ohms). This minimizes discontinuities or reflections on the transmission line.

LOW BAND--A video recording technique which uses relatively low frequencies to produce a video image. This technique results in lower quality pictures when compared to high-band recording.

LOW FREQUENCY DISTORTION--In television, the distortion that occurs below the horizontal line frequency of 15.75 kHz.

LOW KEY--A lighting approach characterized by deep shadows, high contrast ratio, and strong use of highlight and dark areas.

LOW-LIGHT CAMERA--A television camera that uses an intensified image pickup tube and specially designed circuitry to produce a viewable image under extremely low-light conditions. The image tube normally is designed with multiple intensifiers.

LOW-Z--The acronym for low impedance. Microphones are usually low impedance to make long cable runs without severe signal loss. Television equipment inputs are low impedance to minimize noise.

LUMEN (LM)--The unit of luminous flux equal to the flux through a solid angle (steradian) from a uniform point source of one candela or to the flux on a unit surface of which all points are at a unit distance from a uniform source of one candela.

LUMEN/FT<sup>2</sup>--A unit of incident light. The illuminance on a surface of one square foot in area on which a flux of one lumen is uniformly distributed or the illuminance at a surface all points of which are at a distance of one foot from a uniform source of one candela.

LUMINAIRE--The name for any lighting instrument.

**LUMINANCE**--Luminous intensity (photometric brightness) of any surface in a given direction per unit of projected area of the surface as viewed from that direction; measured in footlamberts (fL).

**LUMINANCE CHANNEL**--In color television, the component which carries the monochrome signal and provides brightness information to the television monitors and recorders. See "Y" SIGNAL.

**LUMINANCE CHROMA KEY**--See SOFT KEY.

**LUMINANCE SIGNAL**--That portion of the NTSC color television signal which contains the luminance or brightness information.

**LUX**--International System (SI) unit of illumination in which the meter is the unit of length. One lux equals one lumen per square meter.

**MAGNETIC FOCUSING**--A method of focusing an electron beam by the action of a magnetic field.

**MARK**--In television, marking tape placed on the studio floor to indicate the desired position for a subject to stand.

**MASTER**--An original (first or second generation) video recording from which dubs are made and distributed. See DUB.

**MASTER CONTROL FADER**--The fader control on an audio console which regulates the entire output from the console.

**MASTER SHOT**--A scene on video tape, usually a wide or a long shot, which is used as the master in editing a sequence of taped events.

**MATCHED DISSOLVE**--The effect of dissolving from one scene to the next when both scenes are closely matched in content.

**MATRIX SWITCHER**--A combination or array of electromechanical or electronic switches which route a number of signal sources to one or more destinations.

**MATTE**--Synonymous with the terms 'mat' or 'matting,' which are used interchangeably to describe the creation of framing, gray pebbling, half-toning, or haloing around portions of a television picture.

**MATTE KEY**--The act of keying in a graphic or symbol over a background picture. The cutout lettering can be electronically filled in with any desired color shade including gray.

**MATV**--Abbreviation for Master Antenna Television. A system in which multiple receivers or recorders share a common antenna system.

**MECHANICAL EDITING**--The process of editing video tape whereby the tape is physically cut and spliced together. While mechanical editing is extremely difficult with helical scan tape, quad tape can be mechanically edited as easily as film.

**MECHANICAL FOCUS**--The focusing of a television camera by mechanical mounts, slides and gears. The lens or image tube is moved on a mechanical axis into a focused position.

**METRIC VIDEO**--See VIDEO METRIC.

**M-FORMAT**--The video tape format used by video recorders that record Y, I and Q components directly on video tape. It is used in broadcast quality recam units because it produces high quality color recordings.

**MICRO CHANNEL PLATE (MCP)**--Also called Micro Channel Wafer (MCW). Used as the electron gain element in GEN II and III image intensifiers. The MCP is constructed of coated glass or ceramic. It is normally 11 mm to 40 mm in diameter and 0.1 mm to 3 mm thick. The MCP normally contains from thousands to several million channels (holes), a few microns in diameter. The inside surfaces of these channels are coated with a resistive emitter surface. As electrons are emitted from the photocathode, they are attracted toward and enter the MCP channels. When these electrons strike the coated inside surface of the channel, additional electrons are released. The channel electron gain is determined by the coating materials, the length/diameter ratio of the channel, and the potential across each end of the channel. After leaving the channel, the electrons are attracted to the anode phosphors (imager) where they are converted to photonic emissions.

**MICROSCOPY**--In television, the application of CCTV to optical microscopes to obtain enlarged views of microscopic materials that can then be viewed on television monitors or videotaped on standard video recorders.

**MIX BUS**--A pair of buses that have a fader-bar control to perform fades, dissolves and supers.

**MIX/EFFECTS BUS**--A series of buses that are connected to a fader-bar control and an effects generator to produce keys, wipes, inserts, and split screens.

**MODULATION TRANSFER FUNCTION (MTF)**--Also called sine-wave response and contrast transfer function. The function, usually depicted as a graph, describes the modulation of the image of a sinusoidal object as the modulation frequency increases. It is the ratio of the modulation in the image to that in the object.

MOIRE--In television, the spurious pattern in the reproduced picture resulting from interference beats between two sets of periodic structures in the image. When observed on the output of a videotape recorder, it may indicate improper adjustment of the head preamplifier. Complex patterns (stripes, checks) on items such as clothes will cause moire.

MONAURAL--Single channel audio.

MONITOR--A device for viewing video directly from a camera output or other video source (graphics computer). If the device has a channel selector, it is called a receiver. Some monitors have special features and are called test monitors.

MONOCHROME--A black and white television picture encompassing all shades of gray.

MONOCHROME SIGNAL--In monochrome television, a signal for controlling the degree of brightness (luminance) values of the picture, whether displayed in color or monochrome.

MONOFOCAL LENS--A nonfocusing lens that has been set by the manufacturer to the hyperfocal position for maximum depth of field.

MONTAGE--A rapid sequence of scenes used to produce either a particular image or mood.

MOTION DETECTOR--In television, a device used in conjunction with a television camera to detect movement in a scanned area. The detector digitally analyzes a static picture several times a second. Any significant change caused by either movement or a sudden change in illumination initiates an alarm. Some motion detectors employ user selectable windows to isolate parts of the viewed scene. The devices are designed to adapt to slow lighting change (night to day) without initiating an alarm.

MOTIVATED KEY--The act of positioning the key light in a place logically determined by the arrangement of the objects on the set.

MOVING COIL MICROPHONE--See DYNAMIC MICROPHONE.

MTF--Abbreviation for either Mean Time to Failure or Modulation Transfer Function.

MULTIBURST--A test pattern used to check the frequency response of television equipment. It is also used for checking moire, banding and color crawl. A multiburst pattern consists of bursts of low to high frequencies.

MULTICOUPLER--See SPLITTER.

MULTIPLE CAMERA--A video production method in which each video camera has its own video recorder. All editing is done from video tape in post production.

MULTIPLEXER--In television, a specialized optical device that makes it possible to use a single television camera in conjunction with one or more film projectors and/or slide projectors in a film chain. The camera and projectors are in a fixed relationship, and prisms or special (dichroic) mirrors are used to provide smooth and instantaneous nonmechanical transition from one program source to the other.

MULTIPLIER--See RANGE EXTENDER.

MUNSELL SYSTEM--A reference color scale used to identify various colors according to hue, saturation and brightness.

-N-

NAB--Abbreviation for National Association of Broadcasters.

NARROW ANGLE LENS--See TELEPHOTO LENS.

NEAR ULTRAVIOLET--The longest wavelengths of the ultraviolet region: 300 to 400 nanometers.

NEGATIVE IMAGE--A picture signal having a polarity opposite to normal polarity. The result is a picture in which the white and black areas are reversed.

NEMO--The term for a remote television program that originates from outside the television studio.

NEUTRAL DENSITY FILTER--An optical device. A light filter that reduces the intensity of light without changing the spectral distribution of light. All colors remain unaffected.

NEUTRAL SET--A totally bare scene or set which emphasizes foreground subjects.

NEWVICON--Trade name for a television image pickup tube of the direct readout type that was designed for low light applications. The photoconductive target is a heterojunction structure that is characterized by high sensitivity, non-blooming of high brightness details, relative freedom from burn-in, and good resolution. Spectral response is approximately 470 to 805 nanometers.

NIGHT VISION DETECTOR--A device that uses low-level visible or infrared radiation to produce a visual image of a night scene as it would appear in daylight. These devices may rely on the amplification of existing visible light by image intensifier tubes.

NIT--The unit of measurement of luminance that is equal to one candela per square meter.

**NOISE BAR**--A horizontal bar created on a video image by an excessive signal-to-noise ratio adversely affecting the sync signals.

**NONBROWNING**--Term used in conjunction with lens glass, face-plate glass, glass envelopes (vidicons), and in radiation tolerant television cameras. Nonbrowning glass will not discolor when irradiated with atomic particles and waveforms.

**NONCOHERENT**--In the study of light, light that has no relationship between rays or particles. Light such as sunlight or light from incandescent lamps is noncoherent as opposed to laser light which is coherent.

**NONCOMPOSITE VIDEO**--A video signal containing all information except sync.

**NONINTERLACE**--See SEQUENTIAL SCAN.

**NONSEGMENTED**--A method of helical scan recording which uses a single video head. The head records one complete video track with each revolution which permits very stable freeze frame and slow motion on playback.

**NOTCH FILTER**--A special filter designed to reject a very narrow band of frequencies. In television, the frequency usually rejected is 3.58 MHz.

**NORMAL LENS**--Any lens with a focal length that produces a field of view and spatial perspective equal to the human eye.

**NTSC**--Abbreviation for the National Television Systems Committee. A committee that worked with the FCC to formulate the standards for present day commercial broadcast television. The NTSC developed and specified the 3.579545-MHz color subcarrier for conveying color information in a form compatible with broadcast monochrome. The letters NTSC are currently synonymous with color broadcast in the United States, but the original NTSC standard for monochrome television is still in effect.

**NUMERICAL APERTURE (NA)**--The sine of the half angle of the widest bundle of rays capable of entering a lens, multiplied by the refractive index of the medium containing the bundle.

**NUMERIC INSERTER**--See CHARACTER INSERTER.

ODD FIELD--In an interlaced scanning system, the field containing all the odd lines that begins with a complete horizontal scan line and ends after a partially blanked horizontal scan line. In NTSC, there are 263 lines in the odd field. Line 263 is a half line.

OFF-LINE--In television editing, use of inexpensive small format video tape dubs to make edit decisions that will affect original footage. An SMPTE time code is inserted to cue edits. The time code is then analyzed by a computer-assisted editing system to edit the original tapes.

OMEGA WRAP--The method of magnetic video tape loading used in some helical scan video tape recorders. The tape is wrapped 180° around the head drum.

OMNIDIRECTIONAL--In audio, a type of microphone designed to be equally sensitive to sound emanating from any direction.

ON-LINE--In television editing, editing large format master video tapes directly under the control of a computer-assisted editing device.

OPACITY--The degree to which a surface or object obscures objects or space beyond. The object is opaque if it totally obscures light.

OPEN-FACE SPOTLIGHT--A lighting instrument with no lens.

OPEN SET--A scene or set design technique which uses a minimum of flats. Any flats used will resemble the actual environment depicted in the scene.

OPTICAL AXIS--The straight line passing through the centers of the curved surfaces of a lens or lens system.

OPTICAL EFFECTS--See SPECIAL EFFECTS.

OUTCUE--The final cue on a video tape or program.

OVERCUT--1. In television, the act of changing the inserted image in a key or matte picture without affecting the background picture. 2. Excessive switching between video cameras during a video production.

OVERSCAN--An effect caused by the high voltage being set too high on the monitor or the horizontal component being out of tolerance. The television picture is stretched beyond the raster size for the monitor or receiver as a result. Viewfinder monitors associated with television cameras are deliberately overscanned to ensure that the camera operator has not cropped the subject.

-P-

PAD--1. In audio, a resistance placed in an audio circuit to either match impedances or attenuate power. 2. In television production, a flexible segment which can be used to lengthen or shorten a production. 3. A segment added at the end of a video tape to prevent running out of material before the end of a program.

PAIRING--A faulty interlace scan wherein the scanning lines tend to overlap each other. The effect is a severe reduction in vertical resolution capability.

PAL--Abbreviation for Phase Alternating Line system. A color television system in which the subcarrier derived from the color burst is inverted in phase from one horizontal line to the next to minimize errors in hue that may occur during color transmission. At present, PAL is only used outside of the United States. PAL is based on a 625 line by 25 frames per second format.

PAN AND TILT--A device upon which a television camera can be mounted that allows movement in both the azimuth (pan) and the vertical (tilt) plane. Control is done either electronically or manually.

PAN LIGHT--See BROAD.

PANTOGRAPH--An expandable device used to vary the height of lighting instruments.

PAR--Abbreviation for Parabolic Aluminized Reflector. A lamp with a built-in reflector unit.

PARABOLIC REFLECTOR--1. In audio, a large dish with a microphone mounted at the center which is used to pick up audio from long distances. 2. In broadcast television, a large dish antenna used as a satellite receiving antenna by either cable casters or private users.

**PASSIVE SWITCHER**--A pushbutton television switcher that switches by mechanical action only. For example, a switcher that has six or more inputs and one output. The output is disrupted while the switcher mechanically moves from one set of contacts to another. Any device connected to the output will lose sync during the switching interval resulting in 1 to 5 seconds of picture instability.

**PEALIGHT**--A tiny light used to simulate stars. It is commonly used with a cyclorama.

**PEDESTAL**--1. The black level of a composite video signal. 2. A device for mounting television cameras that provides pan and tilt to the camera. 3. In television production, the command to a camera operator to raise or lower the height of the camera. See SETUP.

**PEDESTAL LEVEL**--See BLACK LEVEL.

**PERAMBULATOR BOOM**--A device that consists of a large boom arm on a wheel-mounted base with controls that permit devices attached to the boom to be rotated, extended or retracted.

**PERSISTENCE**--In a CRT, the period of time a phosphor continues to glow after the excitation is removed.

**PERSPECTIVE**--1. In television, spatial relationships as they appear to a television camera. 2. The relationship of sound quality to picture quality.

**PHOSPHOR**--A substance capable of luminescence particularly when excited with an electron beam.

**PHOSPHOR-DOT FACEPLATE**--A glass plate in a tri-color or monochrome picture tube which may be the front face of the tube or a separate internal plate. In either case, its rear surface is covered with an orderly array of phosphor dots. When excited by electron beams in proper sequence, the phosphors glow in red, green and blue (if color) to produce a full picture.

**PHOTOCATHODE**--An electrode used for obtaining photoelectric emission. Emission of electrons results in the photocathode becoming the negative electrode of a phototube.

PHOTOCATHODE LUMINOUS SENSITIVITY--The responsiveness of a photocathode to luminous energy equal to the ratio of the photoelectric emission to the incident luminous flux.

PHOTOCONDUCTIVITY--Changes in the electrical conductivity of a material as a result of its absorption of photons.

PHOTOCONDUCTOR--A device whose electrical resistance varies with exposure to light.

PHOTOELECTRIC EMISSION--The phenomenon of emission of electrons by certain materials upon exposure to radiation in and near the visible region of the light spectrum.

PHOTONICS--The technology of generating and harnessing light and all other forms of radiant energy whose quantum unit is the photon. The science includes light emission, transmission, modulation, deflection, amplification and detection by optical components and instruments, lasers and other light sources, fiber optics, electro-optical instrumentation, related hardware and electronics, and sophisticated systems. Applications of photonics extend from energy generation and detection to communications and information processing.

PHOTON LIMITED SENSITIVITY--When the quality of available light is the limiting factor in the sensitivity of a device.

PHOTOPIC VISION--Vision which occurs at moderate and high levels of luminance and permits distinction of colors. Known as light-adapted vision, it is attributed to the retinal cones of the eyes. Opposite of twilight or scotopic vision.

PHOTOSITE--The picture element for a CCD imager.

PICKUP TUBE--See IMAGE PICKUP TUBE.

PICTURE ELEMENT--1. Any segment of a scanning line, the dimension of which along the line is exactly equal to the normal line width. 2. Also called a pixel, especially in reference to video graphics systems. (In solid-state imagers such as CID, CCD and photodiode, pixel refers to a discrete photosensitive element.)

PICTURE MONITOR--See MONITOR.

PICTURE SIGNAL--That portion of a composite video signal which lies above the blanking level.

PICTURE TUBE--The CRT tube in a television monitor on which the picture is produced by variation of beam intensity as the beam scans the raster. See CATHODE RAY TUBE.

PIN--1. In television lighting, the act of focusing the beam of light emanating from a fresnel spotlight down to a highly directional spot. 2. In audio, overloading the audio level to the extent the needle of an audio level meter is driven off scale.

PINCUSHION DISTORTION--Distortion in a television monitor that makes the sides appear to bulge inward.

PINHOLE LENS--A special lens with compressed optics designed for covert operation. Pinhole lens are only a fraction of an inch (0.1 - 0.25) in diameter at the face of the lens.

PIPE GRID--See BATTEN.

PIXEL--See PICTURE ELEMENT.

PLASTICS--In television production, the slang for scene and set elements such as graphics, flats, lighting, and makeup.

PLUMBICON--Trade name for a direct readout type lead oxide television pickup tube manufactured by N.V. Philips which is more sensitive than a vidicon and has good colorimetry with minimal picture lag.

POINTS--In television lighting, an intensity scale used to indicate the position of a lighting dimmer fader control measured from zero (no power) to ten (full power).

POLARITY OF PICTURE SIGNAL--The sign of the potential portion of the signal representing the dark area of a scene relative to the potential portion of the signal representing a light area. Polarity is stated as "black negative" or "black positive."

**POLARITY REVERSAL**--In television, reversing the gray scale so that a negative image results.

**POP FILTER**--See **BLAST FILTER**.

**POST PRODUCTION**--The work associated with television production after the production has been recorded. Editing is post production work.

**PRACTICAL LIGHTS**--Lighting devices such as table lamps, chandeliers and light fixtures which must actually work during a video production.

**PREPRODUCTION**--The work associated with television production prior to the production. Scheduling, equipment preparation, and script writing are preproduction activities.

**PREROLL**--The act of starting video tape recorders ahead of time so the tape drives, heads and associated electronics are stabilized prior to the event. All editing systems preroll video tapes.

**PREVIEW BUS**--A row of switches on a production switcher that allow the operator to select and review a picture before either recording or broadcasting it.

**PREVIEW MONITOR**--The television monitor connected to the preview bus.

**PRIMARY COLORS**--Three colors for which no mixture of any two can produce the third. In color television, these are the additive primary colors of red, green and blue. See **ADDITIVE PRIMARIES**.

**PRIMARY LENS**--Any fixed focal length lens.

**PRIMARY VIDEO**--Any video source that produces images directly. Examples are cameras, television test generators, graphics generators, character generators, and telecines.

**PRISM BEAM SPLITTER**--An optical device in a color television camera that dissects light entering the lens into three primary colors. See **BEAMSPLITTER**.

PROCESSOR--A video amplifier that separates video signal and sync signal so that phase, amplitudes and pulse width can be adjusted independent from one another. Once adjusted, the signals are re-mixed to provide a video composite output.

PROGRAM AMPLIFIER--See LINE AMPLIFIER.

PROGRAM BUS--A row of switches on a production switcher that allow the operator to select the picture to be either recorded or broadcasted.

PROGRAM MONITOR--The television monitor connected to the program bus.

PROJECTOR--A combination of lens, mirrors and electronics used to project an enlarged television picture on either the front or rear of a large screen. See REAR SCREEN PROJECTOR.

PROP--The theatrically derived abbreviation for property. Any portable article placed in a scene or set.

PROXIMITY FOCUSED IMAGE TUBE--A planar photocathode and a planar phosphor screen mounted in a close-spaced parallel configuration in an evacuated enclosure so that the ensemble of photoelectrons emitted from each tiny photocathode area does not have the time to spread out appreciably while crossing the gap between the photocathode and the phosphor screen.

PULSE CROSS--The raster displayed on a television test monitor when horizontal and vertical delays have been introduced into the video signal to move the sync signal into the visible raster. Each sync interval appears as a black bar, imposed on the blanking interval which appears as a grey bar. A pulse-cross display is widely used for aligning video recorders and observing VITs, VIRs, SID, and closed-caption insertion.

PUNCH UP--Slang for selecting any given input or output on a video switcher or editor.

PURITY COIL--An electromagnetic device placed about the neck of a 3-gun tricolor picture tube whose function is to control the angle at which all three beams approach the aperture mask. Its correct adjustment produces pure colors of red, green and blue on the phosphor-dot faceplate.

PUSH OFF--The special effect in which one image appears to literally push another image out of the raster.

-Q-

'Q' SIGNAL--The color component used in an NTSC system to modulate the color subcarrier at a phase  $147^\circ$  removed from the burst reference phase. This signal is capable of reproducing the range of colors from purple to yellow-green.

Q-SWITCH--A device used to rapidly change the Q of an optical resonator. It is used in the resonator of a laser to prevent lasing action until a high level of inversion (optical gain and energy storage) is achieved in the laser rod. When the switch rapidly increases the Q of the cavity, a giant pulse is generated.

QUAD--See QUADRAPLEX.

QUAD SPLIT--A video special effect in which four different scenes appear on the raster simultaneously. Each scene occupies one quadrant of the raster.

QUADRAPLEX (QUAD)--A method of recording television on magnetic tape. Four video heads are mounted on a rapidly rotating head drum which results in the heads traveling perpendicular to the tape. All 2-inch tape is recorded using quad. Typical frequency response exceeds 5 MHz and can extend to 10 MHz in nonbroadcast video applications. Excellent quality is offset by high cost, critical operating requirements and expensive maintenance. Video tapes recorded on quadraplex machines can be mechanically edited by using the same techniques used for editing film. Most editing is done electronically to avoid mechanical editing.

QUADRATURE SIGNAL--See 'Q' SIGNAL.

QUANTUM EFFICIENCY (QE)--With respect to a source of radiant flux, the ratio of the number of quanta of radiant energy (photons) emitted per second, to the number of electrons flowing per second.

QUARTZ LAMP--A lamp constructed of fused silica which is filled with halogen gas capable of providing high intensity illumination while maintaining a constant color temperature. The filament is made of a high temperature tungsten. Quartz lamps are used in portable lighting kits because they are small and light. Care must be exercised in handling these lamps because the oil on the human hand will shorten the bulbs life and may cause the lamp to explode when it is turned on.

-R-

R--The red component of an RGB component analog video system.

RADIANCE--The measurement of radiant power per unit source area per unit solid angle; usually expressed in watts/m squared/steradian.

RANDOM INTERLACE--A technique for scanning that is often used in CCTV systems where there is no fixed relationship between adjacent lines in successive fields. It offers reduced precision to that employed in commercial broadcast.

RANGE EXTENDER--An optical device that increases the focal length of a lens. Optical doublers and triplers are range extenders.

RASTER--1. A predetermined pattern of scanning lines which provides substantially uniform coverage of an area. 2. The area of either a picture tube or an image pickup tube scanned by the electron beam.

RASTER BURN--In image pickup tubes, a change in the characteristics of that area of the target which has been scanned, resulting in a spurious signal corresponding to that area when a larger or tilted raster is scanned. The signal usually presents itself as a negative rectangular image when viewed on a monitor.

REAR SCREEN PROJECTOR--A device that projects a television image on the back side of a translucent screen. The image is then viewed from the front side. Rear screen projectors are often used for background in video productions.

RECAM--Acronym for recorder camera. The commonly accepted term for devices that have been designed with the video camera and video recorder integrated into a single device. These devices are compact and are intended for ENG use. The video tape used is usually a 1/2-inch format component video recorder with tape recording times of 60 to 90 minutes. The professional recorders are capable of very high resolution, but the output must be translated and encoded before it is compatible to NTSC systems.

REFERENCE BLACK LEVEL--The picture signal level corresponding to a specified maximum limit for black peaks, usually 7.5 percent IRE.

REFERENCE WHITE LEVEL--The picture signal level corresponding to a specified maximum limit for white peaks, usually 100 percent IRE.

REFLECTED READING--The reading obtained on a light meter when the meter is pointed at the subject to measure the light reflected from the subject into the television camera lens.

REGISTRATION--In television, the accurate alignment of the three image pickup tubes in a color television camera to produce a composite color signal.

RESOLUTION--The details that can be distinguished on the television screen. Vertical resolution refers to the number of horizontal black and white lines that can be resolved in the picture height (in NTSC, 480 lines). Horizontal resolution refers to the black and white lines resolved in a dimension equal to the vertical height and may be limited by the video system bandwidth. Horizontal resolution is definitely limited by video recorders. See LINES OF RESOLUTION.

RETAINED IMAGE--Also called image burn. A change produced either in or on the target of an image pickup tube which remains for a large number of frames after the removal of a previously stationary light image and yields a spurious electrical signal corresponding to the viewed image.

RETRO ZOOM--A lens assembly designed to reduce the focal length range of a zoom lens.

REVERBERATION--The persistence of original sound that is produced either acoustically or electronically to give monaural recording more depth.

RF DUB--A magnetic tape copy created by connecting the RF component directly from the head electronics of the playback machine to the head electronics of the record machine. The preferred method for dubbing video tape.

RF MICROPHONE--A microphone that uses a radio link between the microphone and the audio system. Most performers prefer working with RF microphones.

RF PATTERN--A term used to describe a fine herringbone pattern in a picture which is caused by high frequency interference. This pattern may also cause a slight horizontal displacement of scanning lines, which results in a rough, or ragged, vertical edge of the picture.

RIBBON MICROPHONE--A microphone which uses a sensitive ribbon suspended in a magnetic field as the generating element.

RIM LIGHT--A lighting instrument placed behind a subject or scene to emphasize the effect of depth in a scene.

RGB--The abbreviation for the red, green and blue picture signal generated by either the image pickup tube in a color camera, a test generator or a computer graphics generator. Each signal is separate from the other with the green picture signal usually carrying the sync signal. The red and blue may also have a sync signal present. See COMPONENT ANALOG VIDEO.

ROLL--A loss of vertical synchronization which causes the picture to move up or down on a receiver or monitor. The rate at which the picture rolls is the difference between internal sync frequency and the received sync frequency.

R-Y--Acronym for Red minus Y (luminance). The PAL, S-MAC or Betacam component signal that is equivalent but not equal to the "Q" component signal in NTSC.

-S-

SATELLITE CAMERA--In CCTV, a ceiling-mounted surveillance camera that is concealed in a spherical housing.

SATICON--Trade name for a television image pickup tube of the direct readout type having low lag, near unity gamma, and well-balanced spectral sensitivity.

SATURATION--1. The degree to which a color is undiluted with white light or is pure. The vividness of a color, described by such terms as bright, deep, pastel, and pale. Saturation is directly related to the amplitude of the chrominance signal. 2. In image devices, saturation is the condition where further increases in input light flux result in little or no increase in output signal.

SATURATION POINT--In image intensifiers, the value of input illumination which after a 100 percent increase in absolute value results in a 20 percent increase in image intensity.

SBE--Abbreviation for the Society of Broadcast Engineers.

SCAN LINE ENCODING--One of the two standard methods of encoding data in video adopted by the RCC/OSG. See Range Commanders Council document 452-86, 'Video Standards and Formats.'

SCANNER--In CCTV, a device for moving a camera in a continuous panning motion from side to side to observe a large area.

SCANNING--Moving the electron beam of an electron tube diagonally across the target of an image pickup tube or across the screen area of a monitor.

SCENE ANALYZER--See MOTION DETECTOR.

SCOOP--See FLOODLIGHT.

SCOTOPIC VISION--Vision attributed to the operation of the retinal rods in the eye which occurs either in faint light, or in dark adaptation. Opposite of daylight or photopic vision.

SCRIM--1. A translucent gauze or fiberglass material used to soften and diffuse illumination from a lighting instrument.  
2. A gauzelike curtain often used in conjunction with a studio cyclorama.

SECAM--Abbreviation for Sequential Couleur A'Memorie, a color television system developed and used by France and the U.S.S.R. SECAM is the most recent standard developed and is considered by some to be the best. Political considerations affect its installation in countries currently implementing television standards. SECAM uses a single frequency modulated subcarrier for transmission of color information. Like PAL, SECAM is based on a 625-line rate at 25 frames per second.

SECOND GENERATION--See DUB.

SEG--Abbreviation for Special Effects Generator. See SPECIAL EFFECTS.

SEGMENTED SCANNING--A method used in some video recorders by which two or more video heads divide or segment the video track information as it is being recorded on tape. A common segmentation is two heads recording video fields.

SEGUE (pronounced seg-way)--The act of switching immediately to a new sound source from the original source without interruption. See CROSSFADE.

SENSITIVITY--In television, a factor expressing the incident illumination upon a specified scene required to produce a specified picture signal at the output of a television camera.

SEQUENTIAL SCAN--A system of television scanning in which each line of the raster is scanned sequentially. It is commonly used as the scanning technique for computer graphics video. Also called noninterlace.

SEQUENTIAL SWITCHER--A device designed to automatically select each input at a rate determined by the operator. The selected input is displayed at a monitor station or console for viewing and/or recording. Sequential switchers are used extensively in security and surveillance systems. If an alarm system is incorporated, the switcher will select the video signal monitoring the source of alarm. The alarm condition will be displayed on a monitor, and in some systems a video recorder will start automatically.

SERVOZOOM--A zoom lens which is operated electronically by remote control.

SET LIGHT--A lighting device used to provide background or scene illumination rather than subject illumination.

SETUP--The reference black, separated from the blanking level by the setup interval, and expressed as a percentage (NTSC 7.5 percent) of the white signal (NTSC 100 percent). Also called pedestal.

SHADING--A large area brightness gradient in the reproduced picture not present in the original scene.

SHADING COMPENSATION--Dynamic sensitivity control of the picture signal to reduce the amount of video level change from the center to the edge of the picture.

SHADOW KEYER--A special effect based on a chroma keyer which can produce shadows, along with the insert image, for a more realistic composite effect.

SHADOW MASK--See APERTURE MASK.

SHOT BOX--Slang for a zoom lens control mounted at the rear of a television camera which permits the operator to preselect a number of specific lens focal lengths.

SHOTGUN MICROPHONE--A highly directional microphone designed to pick up audio from a faraway source.

SHUTTER--A mechanical or automatic device used in a camera to control the time period in which a light sensitive material is exposed to light radiation.

**SHUTTERED VIDEO CAMERA**--A video camera that has been designed to obtain short duration exposures via shuttering. Shuttering may be accomplished by either mechanical shuttering, switchable polarization devices, or by controlled image intensifiers in which case the effect is known as gating.

**SID**--Abbreviation for Source Identification. A binary-coded format that is inserted on a horizontal line during vertical blanking to identify the source of the program. It is used primarily by the broadcast industry to facilitate billing and royalty tracking. The information encoded includes source name, location, network affiliation, and origin time.

**SIDE LIGHT**--A lighting instrument positioned to the side of a subject to emphasize body shape and form.

**SILICON DIODE (TARGET)**--A high sensitivity television image pickup tube of the direct readout type which uses a silicon diode array photoconductive target and is suitable for low-light applications. High sensitivity extends through the visible light range with extended sensitivity to the near infrared region. It has low-lag and high-burn resistance and is ideally suited for surveillance and video tracking applications.

**SINE WAVE RESPONSE**--See MODULATION TRANSFER FUNCTION.

**SIT (SILICON INTENSIFIER TARGET)**--Trade name for a television pickup tube of the direct readout type designed for low light applications. Has a silicon target, an integral intensifier section with direct electron input to the silicon target, high sensitivity, low lag, and good resolution.

**SKEW**--Improper alignment between the magnetic tape and the video heads of a video recorder. Most recorders provide adjustments for removing skew. Excessive tape skew results in a zig-zag pattern as viewed on a television monitor during playback.

**SLANT TRACK**--See HELICAL SCAN.

**SLIDE CHAIN**--The 35mm slide projector installed as part of a telecine.

**SLOW LENS**--A lens with a relatively high minimum f/stop which prevents it from gathering much light.

**SLOW SCAN**--A method of transmitting still pictures and other graphic materials at much lower frequencies and slower speeds than used for broadcast or CATV. Transmission is not instantaneous; it takes time for the complete image to appear on a television screen. Telephone lines are the usual carrier. Widely used by news services and security agencies for remote surveillance.

**SLUG**--A section of blank video tape (black signal) inserted in place of forthcoming material.

**S-MAC**--Acronym for Studio Multiplexed Analog Component. A technique for the encoding and decoding of component analog video introduced by SMPTE. The Y, R-Y and B-Y components, similar to the components developed for Betacam and PAL, are modulated to a carrier frequency using time compression modulation. Bandwidth of the modulating components is 11 MHz. Component video broadcast will be available via satellite and/or cable transmission when consumer broadcasting begins.

**SMEARING**--Undesirable results because of poor adjustment of an image pickup tube, poor video amplifier frequency response or image motion; usually indicated on a television monitor as a blurred, longer than normal horizontal image.

**SMPTE**--Abbreviation for the Society of Motion Picture and Television Engineers. For publications write to SMPTE, 862 Scarsdale Avenue, Scarsdale, NY, 10583 or call (914) 472-6606.

**SMPTE LEADER**--See ACADEMY LEADER.

**SMPTE TIME CODE**--An eight-digit address code used to identify each video tape frame by hour, minute, second, and frame number for precision editing. It consists of modulated audio tones and is usually recorded on the cue track (2) of the video recorder.

**SNOW**--Heavy random noise. The received signal strength for color television must be considerably higher than monochrome for a good quality picture.

**SOFT KEY**--A chroma key effect in which the edges of the insert image gradually blend into the background. The soft key permits keying transparent objects and shadows into a background picture creating a more realistic key.

**SOFT LIGHT**--A wide aperture floodlight which produces a highly diffused illumination.

**SOLARIZATION**--A special effect in which the insert key is used to produce a high contrast image which can then be colorized using a switcher on an seg.

**SPATIAL FREQUENCY**--The frequency measurement of repetitive objects or lines as viewed on the surface of an imager. It is the reciprocal of the objects or line spacing and is generally expressed in cycles per millimeter.

**SPECIAL EFFECTS**--The process of summing video signals from a number of sources for a desired effect. This is usually done on a matrix or program switcher that incorporates a special effects generator (seg). Common effects are fade, wipe, split screen, spot, key, super, and scroll.

**SPECTROMETER**--A variety of spectrographs in which some form of detector other than photographic film is used to measure the distribution of radiation in a particular wavelength region.

**SPECTRUM LIGHT**--This term is inappropriate. Perhaps replacing the word 'spectrum' with the word 'pertinent' or 'object' would be an improvement.

**SPECULAR REFLECTION**--Hard, intense reflection from a shiny surface.

**SPIE**--Abbreviation for the Society of Photo-Instrumentation Engineers whose official name is now the International Society for Optical Engineering. To maintain continuity, the original abbreviated name still applies. The mailing address for SPIE is P.O. Box 10, Bellingham, WA, 98227-0010.

**SPLIT IMAGE LENS**--A lens system that permits viewing of two different scenes simultaneously with one television camera.

**SPLIT SCREEN**--1. A special effect created by a half wipe which results in two images appearing in the picture simultaneously. 2. In digital image processors, combining two or more fields of video for multi-image display. This effect, whether done in analog or digital format, requires that all video sources be synchronized to one another.

**SPLITTER**--A device used in CATV and Broadband LAN to distribute the RF band to two or more devices. A splitter has one input with two or more outputs. For each output pair there is a loss of 3 dB. A three-way splitter will have two 6-dB outputs and one 3-dB output. In some CATV systems and all Broadband LAN systems, the splitter will have a bidirectional capability in that a signal can be introduced from any output back to the input. Outputs are isolated from one another by 45 dB or more.

**SPOT DOWN**--The act of focusing a fresnel spotlight into a spot beam which narrows the beam and increases light intensity.

**SPOT FILTER**--A neutral density filter mounted in the center of a lens to reduce the amount of light passing through the lens. The spot has little or no effect when the lens is wide open under dim lighting conditions. As the light increases and the lens iris is closed down, the spot filter occupies a much larger area of the available lens opening, thereby reducing the light passing through the lens in proportion to the lens opening.

**SPOTLIGHT**--A lighting instrument which produces a hard, directional, intense beam of light.

**SPOTLIGHT EFFECT**--A special effect which brightens a portion of the displayed picture to highlight a particular event or scene.

**SPOT METER**--A reflected light meter with an extremely narrow field of view used for highly specific and accurate light readings over a limited area.

**SPOTTING**--In television, the actual deterioration of the phosphor coating of an image pickup tube. The image will contain white spots located randomly throughout the picture.

**SPREAD**--See FLOODING THE BEAM.

**SQUARE WAVE RESPONSE**--The ratio of (1) the peak-to-peak signal amplitude given by a test pattern consisting of alternate black and white bars of equal widths to (2) the difference in signal between large-area blacks and large-area whites having the same illuminations as the black and white bars in the pattern.

STAIRSTEP--A test pattern that checks the white to black characteristics of the video signal. A common configuration is 10 steps of gray from black to white.

STARLIGHT CAMERA--See LOW LIGHT CAMERA.

STARLIGHT FILTER--In television production, a special filter designed to produce a starburst effect whenever the camera sees a high intensity light source.

STATIC CONVERGENCE--The combination of electronic voltages and magnetic deflection required to converge a delta gun CRT. Static or fixed voltages are applied at the neck of the CRT to converge sections of the CRT raster. The raster is divided into four to nine sections with separate controls for both horizontal and vertical convergence in each section. Because of the physical differences between CRTs, magnetic shunts are used to converge the edges of the raster.

STEDI-CAM--The term for a device designed to provide a gyro-stabilized and mechanically-damped platform for an ENG television camera. The device mounts to the camera operator allowing total freedom in camera positioning. Any jerks, bounces or rhythmic patterns such as breathing have no effect on the television camera.

STERADIAN--The unit of measurement whose factors are the unit solid angle subtended at the center of a sphere by an area on its surface equivalent to the square of the radius. It is the unit of solid angular measurement and is often used in measuring illumination effects.

STICKING--See BURNED-IN IMAGE.

STILL FRAME STORER--A device used to digitize a video field or frame so the field or frame may be stored as a digital record. Once stored, the picture can be recalled instantly either by digital addressing or by a file name. A still frame storer is used to digitally process video signals and to eliminate slides and camera cards.

STOP DOWN--The act of closing down the aperture of a video camera so less light enters the lens.

**STREAKING**--A picture condition in which objects appear to be extended horizontally beyond their normal boundaries. This condition will be more apparent at vertical edges of objects when there is a large transition from black to white or white to black. This change in luminance is carried beyond the transition and may be either negative or positive. For example, if the tonal degradation is an opposite shade to the original figure (white following black), the streaking is called negative; however, if the shade is the same as the original figure (white following white), the streaking is called positive. Streaking is usually expressed as short, medium or long streaking. Long streaking may extend to the right edge of the picture and, in extreme cases of low-frequency distortion, can extend over a whole line interval.

**STRIKE**--In television production, slang for removing articles from a scene and for tearing down a set once the production is completed.

**STRIPLIGHT**--A row of broads configured on a strip.

**SUBCARRIER**--See CHROMINANCE SIGNAL, COLOR SUBCARRIER, and COLOR BURST.

**SUBCARRIER PHASE**--The shifting in phase of a reference color signal to represent varying and various shades of color as a shift in phase. See COLOR SUBCARRIER and 'I' and 'Q' SIGNALS.

**SUBJECTIVE ANGLE**--A camera angle in which the camera is positioned to show the scene from a participant's point of view.

**SUPER**--See SUPERIMPOSITION.

**SUPER CARD/SLIDE**--White lettering against a black background for use in superimposition. Media can be graphics, 35mm slide, or viewgraph.

**SUPER CARDIOD PICKUP**--A term referring to microphones that are extremely directional.

**SUPER-8**--Video recorder cameras (recam) developed for the consumer market to replace 8mm motion picture cameras. These recams are designed for single-hand operation, have an optical viewfinder and employ the same controls that are found on Super-8 motion picture cameras. The video tape format is also 8mm and resolution is low with good colorimetry.

**SUPERIMPOSITION**--Combining two or more complete video images simultaneously by using a mix effects bus on a video production switcher to place one video image over another.

**SWISH PAN**--Panning very quickly to create a blur effect in the video picture.

**SWITCHER**--In television, a device for selecting two or more (usually six to twelve) sources of video for output to a single bus. Switchers may be passive with no power, powered, vertical interval keyed, or incorporate audio follow. They may be either terminating or bridging switchers and may be ganged for matrix operation. Most switchers use some style of pushbutton switch. Switchers used for television production work incorporate special effects generators, A-B switchers, and fader bars.

**SWITCHER-FADER**--A control that permits each of two or more cameras to be selectively fed into a distribution system. The fader permits gradual transition from one camera to another.

**SYNC**--A contraction of synchronous or synchronization.

**SYNC COMPRESSION**--The reduction in the amplitude of the sync signal with respect to the composite video signal, occurring between two points of a circuit.

**SYNC GENERATOR**--A device for generating sync signals. Usual outputs are composite sync, horizontal sync (drive), vertical sync (drive), horizontal and vertical blanking, subcarrier, burst or burst flag, and burst gate. Most sync generators have the ability to gen-lock to either an external sync or composite video and an external subcarrier.

**SYNCHRONIZER**--See **FRAME SYNCHRONIZER**.

SYNCHRONIZING--Maintaining two or more scanning processes in phase.

SYNCHRONOUS DEMODULATION--In color television monitors, the process of separately detecting the I and Q sidebands of the color subcarrier system.

SYNC LEVEL--The level of the peaks of the sync signal. For EIA Standard RS-170, the level is 0.3 volt below blanking.

SYNC SIGNAL--The signal employed for the synchronizing of scanning. Each horizontal line within the raster incorporates a horizontal sync pulse located in the horizontal blanking interval. Each vertical field incorporates a vertical sync pulse located in the vertical blanking interval. Sync signals are negative in reference to the blanking level. In NTSC, they are expressed as a percentage (NTSC - 40 percent) that is referenced to the blanking level (NTSC - 0 percent). Horizontal sync pulses occur at a rate of 15.750 kHz (monochrome) and 15.734 kHz (color) for NTSC television. All elements of a television signal are referenced to H time or rate (H time being the time required to scan one horizontal line). Horizontal sync width is 0.075 H, plus or minus 0.005 H. Vertical sync width is 0.493 H. Vertical sync occurs once every field at a rate of 60 Hz.

-T-

TALK-BACK--A voice intercom usually connecting the camera and switcher/programmer.

TALLY LIGHT--Signal lights installed either at the front back of television cameras, monitors and switchers to inform performers and crew members when a particular camera is on the air or being recorded.

TAKE--In television editing, individual scenes, segments or frames recorded on video tape. Each is assigned a take number which is used to locate and identify the segments for editing.

TAP--See DIRECTIONAL TAP.

TARGET--In image pickup tubes, a structure employing a storage surface which is scanned by an electron beam to generate a signal output current corresponding to a charge density pattern stored thereon. The structure may include the storage surface which is scanned by an electron beam, the backplate and the intervening dielectric.

TARGET INTEGRATION--A system for increasing the sensitivity of a television camera when viewing a static scene by cutting off the beam for a predetermined number of frames and reading out the information in the first frame after beam turn-on.

TARGET VOLTAGE--In a camera tube with low velocity scanning, the potential difference between the thermionic cathode and the backplate.

TBC--See TIME BASE CORRECTOR.

TEARING--A term used to describe a picture condition in which groups of horizontal lines are displaced in an irregular manner. Tearing is a result of poor horizontal synchronization.

TELECINE--See FILM CHAIN.

**TELEPHOTO LENS**--A long focal length lens which produces a magnified image with a narrow horizontal field of view.

**TELEPROMPTER**--A device which uses either a long roll of paper or a closed circuit television monitor to display the text the subject is speaking. The teleprompter is usually mounted on top of a television camera.

**TEST PATTERN**--A chart especially prepared for checking overall performance of a television system. It contains various combinations of lines and geometric shapes. The camera is focused on the chart, and the pattern is presented on the monitor for fidelity. The best known pattern is the Indian head.

**TEST PATTERN GENERATOR (TPG)**--A device designed to electronically provide assorted television test patterns. Common test patterns are stairstep, sine-squared window, multiburst, color bar, bar dot, and crosshatch.

**THERMAL IMAGING**--The process of generating photo imaging from light waves at the far infrared spectrum. Light waves emanating from heat sources are mainly composed of infrared. Most devices used are electro-optical and are referred to as FLIR systems.

**THREEFOLD**--Three-scene flats hinged together into a single unit.

**THREE POINT**--In television lighting, the basic lighting approach which uses a key, back and fill light to illuminate the subject or scene in order to create depth and texture.

**TILT**--1. In television, the displacement on either the blanking or clamping level caused by low-frequency degradations associated with the reactance of either coaxial or RF transmission systems. 2. The movement of a television camera in the vertical plane. See PAN AND TILT.

**TIME BASE CORRECTOR (TBC)**--A device used to remove time base errors introduced by the drive and servo systems of video tape recorders. The video signal is processed line by line to remove jitter, delay, offset, wow and flutter, and other time base errors.

**TIME BASE ERROR**--See WOW AND FLUTTER.

TIME CODE--See SMPTE TIME CODE.

TIME DATE GENERATOR--An annotator that inserts date and time in the video picture.

TIME LAPSE RECORDING--A video system designed to compress real time. The recording device switches on at a programmed interval for a programmed length of time. For example, the system could be set to record 5 seconds of video every 20 seconds. Playing the recording device back at normal speed results in time compression.

TINT--See HUE.

TITLE CARD--See CAMERA CARD.

T-NUMBER--See T/STOP.

TRACK--1. In television, the area on the video tape designed to record specific signals as in audio track or control track. 2. The accuracy with which the video tape machine plays back a recorded tape. 3. In optical data gathering, the ability of a tracking device or operator to maintain the object of interest in the field of view.

TRACKING SHOT--See TRUCK.

TRAILING--See LAG.

TRANSLATOR--In television, a device for converting from one component analog video format to another. For example, converting RGB to Y, R-Y or B-Y.

TRANSVERSE SCANNING--See QUADRAPLEX.

TRIAxIAL CABLE (TRAIx)--A thin, lightweight cable associated with digital cameras. It consists of a shield and two conductors with the conductors inside the shield in much the same configuration found in a coaxial cable. One conductor provides control signals to the camera, and the other returns a video signal from the camera. Triax weighs about one-fifth the weight of conventional camera cables making it ideal for remote applications.

TRIM--In television lighting, the act of adjusting barndoors or shutters to keep extraneous light from illuminating a subject or area.

TRIPOD--A three-legged device for mounting television cameras which is usually on a dolly for maneuverability. A tripod is normally lightweight for field production use.

TRISTIMULUS VALUES--The amount of the three references or matching stimuli required to match the light considered in a given trichromatic system.

TROMBONE--In television, a device for hanging lighting instruments on or over a set wall that allows the lights to be positioned freely.

TRUCK--In television production, the act of moving a camera horizontally on either its pedestal or tripod.

T-STOP--A short term for transmission stop. A system of rating lens for sensitivity purposes which provides an equivalent aperture of a lens having 100 percent transmission efficiency. This system is based on actual light transmission and is considered as more realistic than the f/stop system.

TUNGSTEN LAMP--See QUARTZ LAMP.

TURRET--In television, a number (usually three or more) of primary lens mounted on a movable device which enables the camera operator to position any one lens in front of the image pickup tube. Positioning can be done remotely via electronic control on some cameras.

TWOFOLD--In television production, two set flats hinged together into a single unit.

TYPE B FORMAT--A helical video recording format for professional quality 1-inch video recorders which employs a segmented scanning process. Type B format is required if the user desires to recover information at a field rate. Typical frequency response is 4 to 5 MHz.

TYPE C FORMAT--A helical video recording format for professional quality 1-inch video recorders which employs a nonsegmented scanning process. Type C has been selected by the television broadcast industry as the industry standard and is capable of recording 350 lines of resolution.

-U-

UHF (ULTRA HIGH FREQUENCY)--In television, a term used to designate television broadcast on CATV channels 14 through 83. See CHANNEL.

U-MATIC--The dominant tape format for 3/4-inch VCRs. The term U-matic is used when describing the equipment as well as the format. Typical frequency response for these devices is 4 MHz.

UNDERCUT--The special effect in which the background picture of a composite image key or insert is changed without affecting the foreground picture.

UNDERSCAN--The process of reducing the size of the raster display to view the edges of a visual signal. Underscan is done for testing and to improve the linearity of the displayed video as all CRTs are more linear toward the center of the tube.

UNIVERSAL ZOOM--A zoom lens with the capability of going from a wide horizontal field of view to a very long telephoto focal length. This wide zoom range permits the lens to be used in virtually any situation. Typical zoom ranges are a minimum of 10:1 with 20:1 being the highest.

VARIABLE LENS--See ZOOM LENS.

VCR--Abbreviation for Video Cassette Recorder. At present, only available in 1/2- and 3/4-inch formats.

VECTORSCOPE--Special synchroscope used in color television camera and color encoder calibration. The vectorscope will indicate graphically on a CRT the absolute angles the different color signals describe in respect to a reference and to each other. These angles, as read on the vectorscope, represent the phase differences of the signals. Some vectorscopes have additional capabilities to measure differential gain, differential phase, I and Q signals, and VIT detection.

VELOCITY COMPENSATION--See TIME BASE CORRECTOR.

VELOCITY ERROR--See WOW AND FLUTTER.

VELOCITY MICROPHONE--See RIBBON MICROPHONE.

VERTICAL BLANKING--The blanking of the picture signal during vertical retrace time. See BLANKING.

VERTICAL DELAY--See PULSE CROSS.

VERTICAL DRIVE--In television systems, a pulse at field rate with the leading edge coincident with the leading edge of the vertical blanking pulse and a duration of 10.5 horizontal lines.

VERTICAL FREQUENCY--See FIELD FREQUENCY and FRAME FREQUENCY.

VERTICAL INTERVAL SWITCHER--A device for selecting more than one video source (usually six to twelve). This switcher is unique from others in that it uses an external sync source to key the switch which occurs during the vertical interval of the video signal resulting in extremely smooth glitch-free switching.

**VERTICAL PHASE**--The process of synchronizing the vertical signals from multiple cameras or other video sources so that the vertical blanking occurs simultaneously. This is done to minimize switching effects.

**VERTICAL RESOLUTION**--The number of horizontal lines that can be seen in the reproduced image of a television pattern. In NTSC, there are 480 lines carrying image data, which under average conditions, should provide 350 lines of vertical resolution.

**VERTICAL RETRACE**--The return of the electron beam to the top of the picture tube screen or the image pickup tube target at the completion of the field scan.

**VERTICAL SERRATION**--Equalizing pulses that occur during the vertical sync interval. See EQUALIZING PULSES.

**VERTICAL SYNC**--The blacker-than-black signal required to sync television equipment. See SYNC SIGNAL.

**VHF (VERY HIGH FREQUENCY)**--In television, a term used to designate broadcast or CATV channels 2 through 13. See CHANNEL.

**VHS (VIDEO HOME SYSTEM)**--The predominant 1/2-inch video cassette format. See BETAMAX/VHS.

**VHSC**--Abbreviation for Video Home System Cartridge. The video tape cartridge that is inserted into a recorder/camera (recam) manufactured for the home consumer market. The VHSC cartridge is provided with an adapter for playback on any VHS recorder/player.

**VID**--Vertical interval data. See VIE.

**VIDEO**--A term pertaining to the bandwidth and spectrum position of a signal resulting from television scanning. In current usage video means a bandwidth in the order of MHz with a spectrum position that goes from dc to MHz. The bandwidth in MHz is determined by the scanning format and color encoding technique employed. The word video technically should only be used as an adjective. Used as a noun, the word video is not specific.

VIDEO AMPLIFIER -A wideband amplifier used for passing television picture signals.

VIDEO BAND--The frequency band used to transmit a composite video signal. A television camera or graphic 512/480 system, or other video source outputs a frequency of 0 to 10 MHz. Most video amplifiers will pass this frequency. If the composite video signal is placed on an RF carrier to be broadcast, the bandwidth is limited to 0 to 4.5 MHz. The RGB that has to be encoded with subcarrier for NTSC operation has a bandwidth of 0 to 4.5 MHz. With the exception of professional video tape recorders, most video recorders will restrict the bandwidth even further.

VIDEO CARTRIDGE--A prepackaged plastic container which holds video tape, normally on two reels. It is used in automatic threading VTR cartridge machines.

VIDEO DISK--1. In interactive video for consumers, a thin disk that has been created by pressing it against a laser cut master disk. The video disk has no record capability and is played on a video disk player. The player will either play the video disk like a phonograph record or it can select sequences under computer control if used in an interactive video system. 2. The term commonly used for all video disk devices. See DISK RECORDER.

VIDEO FEEDBACK--The special effect created by viewing the output of a production switcher with a television camera that then feeds the image back to the production switcher, resulting in multiple images similar to two mirrors looking at each other.

VIDEO-FOCUS METER--A device used to focus a video camera or adjust video levels electronically which is superior to visual methods.

VIDEO GAIN--See CONTRAST.

VIDEO HOME SYSTEM--See VHS.

VIDEO METRIC--The use of video amplitude, chroma and position within the video raster to derive quantitative information for measurement purposes. This is in contrast to using video systems for documentation or recording of an event such as an aircraft in flight.

VIDEO MOTION DETECTOR--See MOTION DETECTOR.

VIDEO SIGNAL (NONCOMPOSITE)--The picture signal. A signal containing visual information and horizontal and vertical blanking. (See COMPOSITE VIDEO SIGNAL.)

VIDEO SPACE--Refers to the fact that an audience's only measure of video reality is what appears on the television screen. The video space is the sum total of all visual elements which interact to create the video picture.

VIDEO TRACKER--A system designed to track an object of interest by generating an error voltage from the changing position in the raster by the object. This change is detected by processing the contrast video associated with the object. The error voltage is then fed to a tracking device to be used in the servo control circuitry.

VIDICON--An image pickup tube in which a charge density pattern is formed by photoconduction and stored on that surface of the photoconductor which is scanned by an electron beam composed of low-velocity electrons. This tube burns easily, has poor lag and is unusable on a video theodolite. Its main feature is low cost, and it works quite well under wide lighting conditions with suitable circuitry. All image pickup tubes are often mistakenly referred to as vidicons.

VIE--An abbreviation for Vertical Interval Encoding, which is the process of inserting digital data in the vertical blanking interval usually between lines 16 to 20. Data may be inserted on either side of the vertical sync interval. See ENCODER.

VIEWFINDER--A small television monitor attached to a television camera so that the operator can see the scene as the camera sees it. Most viewfinders are deliberately overscanned to minimize the operator losing a part of the object of interest.

VIR--An abbreviation for Vertical Interval Reference which is used in the broadcast industry to calibrate equipment and systems. It recently has been incorporated into consumer television receivers. The VIR occurs on line 19 in the vertical interval.

VIT--An abbreviation for Vertical Interval Test. A test pattern that is inserted into the vertical blanking interval on lines 17, 18, 19, or 20 of the even, odd or both fields. It is used in the broadcast industry to calibrate or automatically activate signal processing equipment and by CCTV users. The test signals for VIT originate at the National Bureau of Standards. Because of the recent introduction of frame grabbers (see STILL FRAME STORER), the VIT on broadcast signals probably will be locally originated.

VITC--Abbreviation for Vertical Interval Time Code.

VOICE-OVER (VO)--The act of using an announcer's voice to narrate video presentations. The speaker is not seen in the picture.

VTR--An abbreviation for video tape recorder.

VU METER--A device for measuring the intensity of sound. The VU meters are calibrated in volume units instead of decibels.

-W-

WALL SLED--A device for mounting lighting instruments against a set wall.

WAVEFORM MONITOR--An oscilloscope designed for viewing the waveform of a video signal. It is calibrated in IRE units -40 to 120 with -40 being maximum sync and 120 being maximum white. The IRE units are expressed in percent; 100 units is the ideal peak white level. Annotated characters are quite often set to 110 units.

WEDGE MOUNT--A device that attaches to the base of television cameras to provide quick disconnect from pedestals and tripods. Such mounts are wedge shaped and fit into a pressure connection that is released by squeezing two levers together.

WHIP PAN--See SWISH PAN.

WHITE COMPRESSION--Amplitude compression of the signals corresponding to the white regions of the picture which results in differential gain.

WHITE LEVEL--The picture signal level corresponding to a specified maximum limit for white peaks. In EIA Standard RS-170, the peak is defined as 0.7 volt above blanking.

WHITE PEAK--The maximum excursion of the picture signal in the white direction. This is usually set above white level, expressed in percent and is usually 110 percent above blanking.

WHITE-PEAK CLIPPING--Limiting the amplitude of the picture signal in the white direction. White-peak clipping is normally set to 110 IRE units as viewed on a waveform monitor.

WHITE PLUME--The result of target lag in an image pickup tube that causes a moving highlight to trail a highlight and resemble a white plume.

**WIDE ANGLE LENS**--A television camera lens with a short focal length and a wide horizontal field of view. This type of lens tends to increase perception of depth and to force perspective.

**WILD FEED**--Slang for a nonsynchronous video source.

**WILD SOUND**--Slang for the act of recording nonsynchronous sound on video tape.

**WIND FILTER/SCREEN**--See **BLAST FILTER**.

**WIPE**--A special effect that appears as if the picture is being wiped from the screen either vertically, horizontally or both.

**WIRELESS MICROPHONE**--See **RF MICROPHONE**.

**WORKPRINT**--In television editing, a small format helical dub of either a 2-inch or 1-inch master tape which is used for viewing and off-line editing.

**WOW AND FLUTTER**--Speed variations in either a video disk or tape recorder that distort the sound, the picture or both on playback. These variations are a result of the dynamics of moving tape from the source to the take-up, drive motors and belts, power fluctuations, and physical movement of the equipment while it is recording. Wow and flutter introduce time base errors which can be removed with a TBC.

**WOW IN**--Slang for the act of attempting to record or broadcast the output of a recorder before it is up to speed. The result is distorted sound, picture or both.

-X-

XLR CONNECTOR--The cannon type audio connector most commonly used on professional microphones and associated audio equipment. It is comprised of three pins with a grooved key and incorporates a quick disconnect feature. Its large size requires lavalier and tabletop microphones to have cables long enough for the XLR connector to be out of view.

-Y-

'Y' SIGNAL--1. A signal transmitted in color television containing brightness information. This signal produces a black and white picture on a standard monochrome monitor. 2. In an NTSC color picture, it supplies fine detail and brightness information and is made up of 0.30 red, 0.59 green and 0.11 blue which represents the amplitude in reference to a black-to-white level of 0 to 0.7 volt.

ZOOM--1. To enlarge or reduce, on a continuously variable basis, the size of a televised image electronically or optically.  
2. The act of changing the focal length of a camera lens during a television production.

ZOOM LENS--An optical system of continuously variable focal length, the focal plane remaining in a fixed position. Most CCTV cameras employ fixed lens while most ENG/EFP and broadcast cameras employ zoom lens. See UNIVERSAL ZOOM.

ZOOM RANGE (RATIO)--The range of a zoom lens from the widest possible angle to the narrowest possible angle. It is often expressed as a ratio such as 10:1 or 15:1. The lower number refers to the shortest possible focal length; for example, a 150mm to 15mm lens equals a 10:1 lens.