

BKSTS Dictionary of Audio-visual Terms



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Preface

As its name indicates, the British Kinematograph Sound and Television Society is concerned with the practice of a wide range of technologies, and in undertaking the preparation of this dictionary of technical terms it was agreed that the work should reflect fully the extensive interests of the Society. We have therefore interpreted the term *audio-visual* in the most generous sense, embracing the preparation and presentation of pictures and sound by film and video as well as by tape-slide, film-strip and multivision.

Many of the boundaries which formerly divided photographic and electronic methods of recording and reproduction have tended to disappear during recent years and the interchange of these media now frequently provides an additional tool in the hands of the creative producer as well as extended facilities for exhibition. Motion picture film and still slides are incorporated in video productions, videotape is transferred to film, and tape-slide shows are converted to both film and videocassettes for alternative methods of distribution. There is thus ample justification for treating these varied disciplines within the same volume on a common basis.

In recognition of current developments, we have also considered it necessary to explain numerous terms in the field of computer practice, which now enters into many techniques of both production and presentation. The actual display of images in computer graphics and computer animation is an obvious example but computer-controlled operations in video and sound production, in animation photography and in motion picture processing are of increasing importance, while complex multi-screen shows involving dozens of projectors and hundreds of individual slides benefit greatly in both programming and presentation from the facilities available through microprocessors.

We hope therefore that by providing brief explanations of a number of such terms we shall help the understanding of these important applications. In these, as throughout the volume, we have endeavoured to introduce and define our entries on the basis of practical operations, since this is a dictionary of the usage of terms rather than a textbook or a technical encyclopedia. To the purist, some of these words and their applications may appear unusual or even questionable but it is the explanation of current

employment rather than grammatical formality which has been our guide. We hope, in addition, that this publication will do something to assist in uniformity of interpretation, especially where the same term has acquired somewhat varied meanings in different contexts.

Our Society is fortunate in being able to call upon so much expert knowledge in current procedures and practices and gratefully acknowledges the enthusiastic efforts of all the contributors, members of the Dictionary Editorial Committee, many of whom have previously prepared vocabularies as part of their own technical publications. A wide range of other sources has been consulted to provide word lists and we are also indebted to John Halas, Brian Salt and many others, including industry associations, for the basis of many of the definitions which we have included.

In attempting to cover such a wide field of applied technology, and moreover one which is still developing very rapidly, omissions are inevitable and, despite our best endeavours, errors of definition or of usage may have passed uncorrected; readers' comments and additions will be welcomed for inclusion in subsequent editions.

Bernard Happé, *Editor*

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April 1982

A

a atto-, a prefix denoting a factor of 10^{-18} .

A Ampere, unit of electrical current.

Å Ångström.

A-weighting A control of the frequency response of measuring equipment, commonly used for measuring ambient or electrical noise. The network is defined in IEC Recommendation 651.

A/B (1) Monitoring audio signals after or before tape. Now used as a term for comparing audio signals reproduced by different systems. (2) A fading technique between two selected sources.

A & B cutting A method of assembling original film material in two separate rolls, allowing optical effects to be made by double printing. See also *checkerboard cutting*.

A or B types Terms used to identify the emulsion position in 16 mm prints for projection. Type B is run emulsion to lens, type A emulsion to lamp.

A or B windings The two forms of winding used for rolls of film perforated along one edge only; see *Figure A.1*.

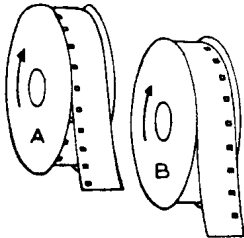


Figure A.1 A or B winding. Film perforated along one edge when unwinding clockwise has the perforations nearer the observer in A winding and away from the observer in B winding

aberration Inherent deficiency of an optical system resulting in the formation of an imperfect image. The principal types are *astigmatism, barrel distortion, chromatic aberration, coma, curvature of field, pincushion distortion* and *spherical aberration*.

absorption coefficient Fraction of incident sound, light or radio frequency energy absorbed by a material at given frequency and conditions.

AC Alternating Current.

Academy The Academy of Motion Picture Arts and Sciences. (USA)

Academy aperture Aperture of a 35 mm motion picture camera or projector with the dimensions specified by the Academy (= *Academy gate*).

Academy leader *Leader* on a motion picture theatrical release print containing information and synchronising marks as designed by the Academy.

AC coupled An electronic circuit capable of passing an AC signal but with a response that does not extend to DC, e.g. transformer or capacitor coupled.

acceptance angle Horizontal width of vision of a camera.

access The process of locating and writing or retrieving information in a store.

access time (1) Time taken to locate and read or write an item of information in a direct access storage device such as a disk drive.

(2) Time taken to find a slide in a random access projector, or a desired section on a random access audio or video reproducer.

accumulator (1) Electrically, a rechargeable secondary cell or battery of such cells. (2) A register for the storage and manipulation of *operands* and data in a microprocessor.

acetate (1) Cellulose triacetate, a clear transparent plastic used as the base for film and for *cels* in graphics. (2) A metal-cored audio disc on which the modulation is originally cut.

acoustic coupler A device for data transmission by telephone. It is attached to the phone handset but needs no electrical connection.

action (1) Command given by a film director for the performance of a scene to begin. (2) The performance of a scene in front of the camera. (3) The film recording the performance, the picture as distinct from the sound.

ACTT Association of Cinematograph, Television and Allied Technicians (UK).

actual sound Sound recorded at the time of filming.

A-D Analogue-to-Digital.

adaptor A means of interconnecting components of a system having different terminations or couplings.

ADC Analogue-to-Digital Converter.

additive colour Colour mixture by the combination of light of the three primaries, red, green and blue.

address (1) Memory location in computers containing an instruction or data. (2) Selected point in a time-coded tape.

address space The available area defined by the co-ordinates of a computer graphics system.

ADSR Attack, Decay, Sustain, Release—the four phases of *envelope* control in a *synthesiser*.

ADT Automatic Double Tracking. Artificial duplication of signals to simulate two or more musicians, etc.

advance (1) In a motion picture print, the separation between the picture image and the corresponding point on the sound track required for correct synchronisation in projection. (2) The command for an automatic slide projector to advance to the next slide.

aerial An input or output termination for the reception or transmission of radio-frequency oscillations; the American usage is *antenna*.

aerial image An optical image formed in space rather than on a screen. In aerial image photography, titles and other material may be combined with this spatial image.

AES Audio Engineering Society (USA).

AF Audio Frequency.

AFC Automatic Frequency Control.

AGC Automatic Gain Control.

AHD Audio High Density, an audio disc system. (Trade name)

aiming symbol A movable *cursor* on a computer graphics display screen, indicating where a *pick* device, such as a light pen or stylus, is pointing.

air brush A small compressed-air paint spray. The term is also used for a similar effect in computer graphics.

ALC (1) Automatic Level Control (= *automatic gain control*) (2) Automatic Lamp Changer. (For slide projectors with main and standby lamps).

algorithm A sequence of instructions that performs a given task.

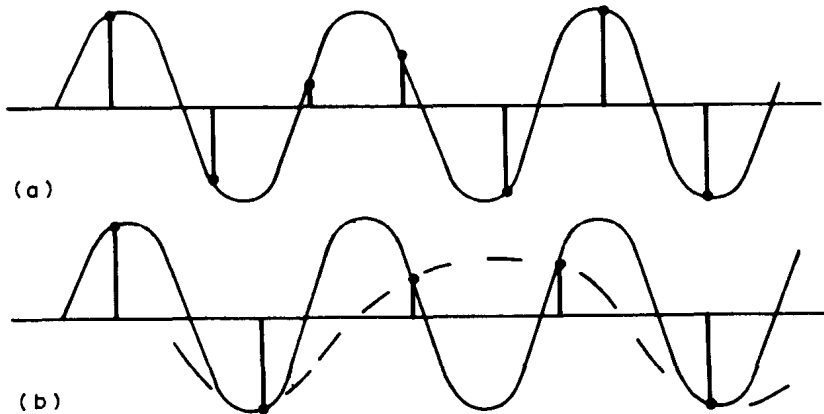


Figure A.2 Alias. In analogue-to-digital conversion (a), a spurious frequency is generated if the sampling rate is too low (b)

alias Unwanted signal generated during analogue-to-digital conversion when the sampling rate is too low, typically less than half the highest frequency to be sampled; see *Figure A.2*.

aliasing The visual effects that occur when the detail of an image exceeds the resolution available on a raster display, for example, a 'staircase' effect in rendering a diagonal line; see *Figure A.3*.

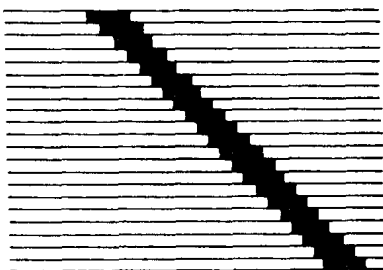


Figure A.3 Aliasing. Because of the raster structure, a diagonal line will be represented as a series of steps

alignment The process of adjusting a system for optimum performance.

all pass A circuit without filters restricting its bandwidth.

alpha wrap Tape path in a helical-scan video tape system giving a full 360° contact on the drum; see *Figure A.4*.

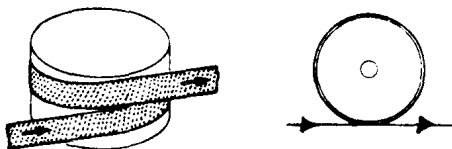


Figure A.4 Alpha wrap. The tape in the helical-scan path makes a complete circuit of the recording head drum

alphanumeric A set of characters that includes the complete alphabet, numerals from 0 to 9, and may include some special characters, such as punctuation marks.

alternate A facility in slide projection for rapid automatic alternation of two picture images.

alternating current Electric current reversing its polarity at regular intervals, e.g. the mains supply at 50 Hz in Europe, 60 Hz in USA.

AM *amplitude modulation.*

ambience Combination of reverberation and background noise in an environment.

ambient sound In presentations using multi-channel sound, the sound fed to the loudspeakers in the auditorium.

ambiophony Creation of artificial reverberation in auditoriums by the use of time delays and multiple loudspeaker systems.

ambisonic Multiple sound channels providing three-dimensional reproduction.

amplifier A device for increasing the strength of input signals (either voltage or current) to provide greater power for subsequent use.

amplitude Level or intensity of a signal, e.g. brightness or loudness.

amplitude modulation Variation in intensity of a nominally fixed frequency carrier.

AN *anti-newton*.

analogue (analog) A signal continuously proportional to a physical parameter.

analyser, colour See *colour analyser*.

analysis projector Apparatus for the detailed examination of a motion picture film record, frame by frame or at variable speed, often including dimensional measurement of the image.

anamorphic (1) In an optical system, having different vertical and horizontal magnifications. (2) In cinematography, an image having lateral compression produced by an anamorphic lens; see *Figure A.5*.

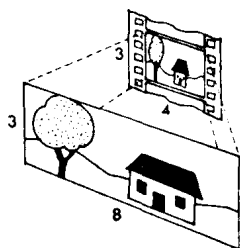


Figure A.5 Anamorphic. The picture image on the film is compressed laterally

AND gate A logic gate which gives an output of 1 when all the inputs are also 1.

anechoic chamber Room enclosed by a non-reflecting surface, may be designed for audio or radio frequencies.

Ångström Unit of wavelength measurement, 10^{-10} metre. (Obsolete; the preferred term in SI units is the nanometre, 10^{-9} metre)

animate To produce the impression of movement by the rapid presentation of a series of still drawings or slides.

animation Producing movement in graphics or film frames, step by step.

animation stand Camera mounting on a vertical framework or column, together with the animation table and its accessories.

- anode** A positive (+) terminal or electrode in an electrical circuit.
- ANRS** Automatic Noise Reduction System. (Trade name)
- ANSI** American National Standards Institute, Inc., the American national standards authority.
- answer print** The first print of a completed motion picture production submitted for approval of the laboratory operations.
- antenna**; see *aerial*.
- anti-aliasing** Processes which remove the effects of addressing individual picture elements on a raster display, making jagged diagonal lines appear smooth.
- anti-alias filter** A filter before an A-D converter preventing frequencies higher than half the sampling frequency passing to the converter.
- anti-bounce** A circuit or software provided to remove ill effects, such as mis-counting, which could otherwise be caused by *contact bounce*.
- anti-halation** A coating or layer applied during manufacture of photographic film to reduce *halation* in the exposed image.
- anti-newton** Slide mounts with their glass surfaces treated to avoid the formation of *Newton's rings*.
- antinode** Point at maximum motion in a vibrating system. See also *node*.
- ANTIOPE** Acquisition Numérique et Télévisualisation d'Images Organisées en Page d'Ecriture, the French national teletext system.
- anti-phase** Out of *phase* by 180°.
- aperture** (1) In an optical system, the opening controlling the amount of light transmitted (= *diaphragm*). (2) In motion picture equipment, the opening at which film is exposed or projected; similarly, the exposure opening in a rostrum camera plate. In slide projection, the internal opening of a slide mount.
- aperture correction** Electronic system for increasing the apparent video picture resolution.
- apron** A forestage extending beyond the main stage into the auditorium.
- AQL** Acceptable Quality Level.
- archive** A store with controlled conditions for the long-term preservation of records, including film, audio and video tapes and digital data.
- arena** An acting area surrounded by an audience.
- array** A series of memory locations with a single name, for example a set of related *variables* representing the days of the year could be named *day (1)–day (365)* (a one-dimension array) or named as parts of months *day (3,9)* (a two-dimension array).

artificial light Light from a source other than natural daylight or sunlight.

artwork Illustrative copy whether prepared by an artist, camera or other mechanical means. The term is also used in printed circuit layout work.

ARQ Automatic-Repeat-Request, for automatic error correction.

ASA American Standards Association, especially its exposure index denoting photographic film sensitivity.

ASCII American Standard Code for Information Interchange. The standard character code, widely used in the computer industry.

ASFP Association of Specialised Film Producers. (UK)

ASK Amplitude Shift Keying, a digital modulation method.

ASM Assistant Stage Manager.

aspect ratio The proportion of picture width to height, often expressed with the height as unity, e.g. 1.85 : 1, or as 4×3 for television.

aspheric A curved surface of a lens or mirror which does not conform to the shape of a sphere; used for correcting aberrations in optical projection systems.

assemble editing Editing where material is joined on the end of existing material, without distortion at the edit point.

assembler A program which converts the low-level mnemonic instructions of *assembly language* to the machine code instructions required to drive a central processor unit.

assembly language A low-level language using mnemonics to assist program development and understanding. Each mnemonic corresponds to a *machine code* instruction.

astigmatism Lens aberration causing points away from the optical axis to be imaged as pairs of lines in different planes.

asynchronous (1) Not synchronous, e.g. sound not synchronised to the picture being presented. (2) Start-stop data transmission avoiding the need for a synchronous clock at the receiving end. (3) Two television signals of the same scanning standard but not synchronised to each other, i.e. not *genlocked*.

ATE Automatic Test Equipment.

attack time Time taken for device to respond to the input signal.

attenuator Device to reduce the strength of an optical, acoustic or electronic signal.

atto- A prefix denoting a factor of 10^{-18} .

audio Concerned with sound recording and reproduction; specifically the chain which carries the sound information.

audio cassette A *compact cassette* used for audio recording.

audio disc A gramophone record.

- audio frequency** The frequency range of normal hearing, generally taken as between 15 Hz and 20 kHz.
- audio tape** Magnetic recording tape designed to record and reproduce information within the sound spectrum, generally using an analogue signal.
- audio-visual** Adjective describing equipment, productions and presentations combining sound and pictures. The restriction of its use to the tape-slide combination is deprecated.
- auditorium** The part of a building reserved for the audience.
- auto-assemble** Video editing mode in which the videotape recorder spaces the tape back at the end of each recording and runs it up to the start of the next to produce a perfect edit transition.
- Autocue** A television prompter. (Trade name)
- auto-cycling equipment** (1) In film animation, the automatic photography of one *cel* at specified intervals along the film, the intervening frames being skipped for exposure subsequently. (2) Video or audio tape recorder operating mode in which the tape is automatically rewound and starts again from the beginning or from a pre-set counter position.
- auto-focus** (1) In a projector, an electro-optical device to ensure that the image is held in focus. (2) On an animation stand, the equipment which maintains focus as the camera field size is altered. (3) In a camera, a device for measuring the distance of the lens from a given object and automatically setting the lens-film distance accordingly.
- automatic end stop** A device for detecting a pulse, signal or termination of run and shutting off the equipment.
- automatic repeat** Keys which automatically continue to repeat their action if held down.
- automatic switch-off** The interruption of the power supply to the system caused by an end-of-show signal, or by the end of the tape.
- auto-stop** *automatic end stop.*
- auto-threading** Film projector, tape recorder or similar device equipped to thread itself instead of having to be laced.
- auxiliaries** Extra effects controlled during a *multivision* programme. The devices commonly controlled include cine projectors, curtains, fountains, lasers, lights, motors, pyrotechnics and smoke machines.
- A-V** *audio-visual.*
- AVA** Audio Visual Association (UK).
- AVAMA** Audio Visual & Allied Manufacturers' Association (UK).
- AVC** Automatic Volume Control.
- AVD** Association of Video Dealers (UK).

A-V format A *compact cassette* track format with mono or stereo on tracks 1 and 2, and the cue-tone or control on track 4, track 3 being unused to improve *crossstalk*. Being superseded by the *IEC* standardisation of tracks 3 and 4, and the space between them, for the control track.

azerty European alternative keyboard layout to *qwerty*, common in France and Germany. It has accents and features a comma rather than a full stop on the numeric keypad.

azimuth The angle between the gap in a magnetic head and the direction of the tape motion; similarly, the angle between the slit in a photographic sound head and the direction of film motion.

B

b *bar*.

B *bel*.

B-format A 1 inch broadcast-quality videotape recorder system.

B-weighting A frequency response weighting network used for measuring noise. The network is defined in *IEC* Recommendation 651 'Precision sound level meters'.

back coating A thin conductive coating applied to the non-magnetic side of recording tapes to improve winding qualities, particularly at high speed.

back focus The distance from the rear element of a lens to the image plane.

backing A coating applied to the base of photographic film to prevent or reduce *halation*.

backing-track (1) Prerecorded audio accompaniment. (2) Sound recording of a combination of instruments and/or vocalists supporting the main performer.

back light Light directed from behind a subject towards the camera, to emphasise subject outline.

back-porch In a television waveform, the brief 'black' period between the end of the horizontal sync pulse and the beginning of the picture information; *colour burst* is transmitted during this period; see *Figure B.1*.

back-projection The projection of a motion picture, still slide or TV image on to the rear of a translucent screen, to be viewed from its front surface.

baffle Panel, usually of a loudspeaker cabinet, in which the individual loudspeaker units are mounted to improve radiation at low frequencies.

BAFTA British Academy of Film and Television Arts.

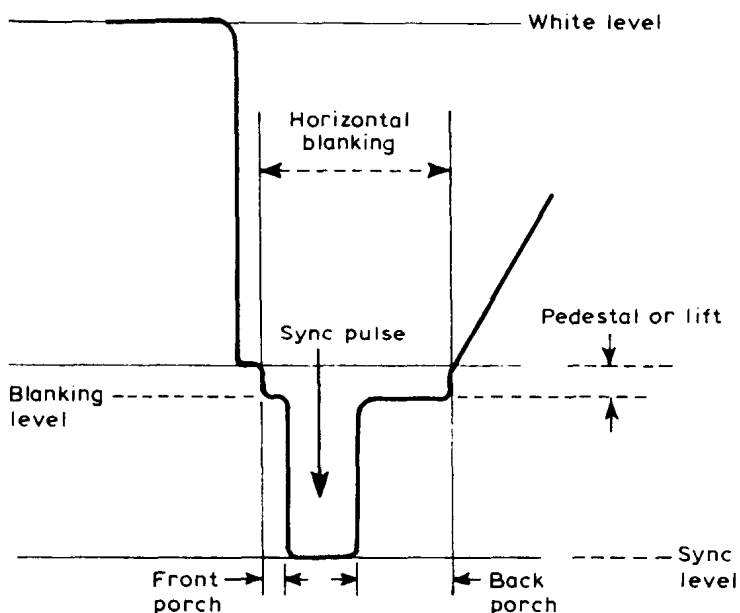


Figure B.1 Back porch

balance, colour See *colour balance*.

balanced Referring to a circuit consisting of a ground connection and two out-of-phase signal lines. Such balanced circuits reject interference common to both signal connections.

banana plug A single-pole plug, commonly 4 mm diameter.

banding Also known as head banding. A videotape recorder defect which causes horizontal bands of different hue, noise or saturation.

bandpass filter A filter which transmits a defined frequency range rejecting higher and lower frequencies.

bandstop filter A filter which rejects a defined range of frequencies passing higher or lower frequencies.

bandwidth The range of frequencies passed by a device; often specified as the range between the limits at which attenuation of -3 dB below the maximum occurs.

bar A unit of fluid pressure equal to 100 000 Pascal.

bar chart A form of graph in which the height of each bar represents the quantity. The correct term is a histogram.

barn door Hinged flaps restricting the light beam from a luminaire.

barney A soft padded cover used to reduce the noise of a motion picture camera.

barrel distortion Image distortion in an optical or video system causing a rectangle to appear to have convex sides and compressed corners (cf. *pincushion distortion*); see Figure B.2.

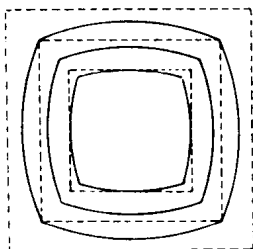


Figure B.2 Barrel distortion

barrier strip A type of electrical connector comprising a series of screw terminals mounted on, or in, an insulating strip.

base (1) For film or tape, the flexible support on which a photographic emulsion or magnetic coating is carried. (2) In electronics, the control electrode of a transistor.

basher A small studio luminaire placed close to the camera, to which it is sometimes attached.

BASIC Beginners' All-purpose Symbolic Instruction Code. A widely used computer language.

batch number Identification of a quantity manufactured at one time with uniform characteristics, particularly film *raw stock*.

bath A processing solution for photographic film, especially a developer, or its container tank(s).

battery back-up Battery system to prevent loss of data when power to a computer, or other system, fails or is turned off.

baud Unit of data transmission speed representing one change of state per second.

baud rate Speed of data transmission; often but not necessarily equivalent to bits per second.

Baxendall A tone control circuit named after its designer.

bayonet mount A push-and-twist type of lens mounting.

BBC British Broadcasting Corporation.

BCAVM British Catalogue of A-V Material.

BCD Binary Coded Decimal. Four bit or 4-wire system using weighted values of 1, 2, 4, and 8 to express numbers in the range 0-9.

BCU Big Close-Up.

BEEAB British Electrical and Electronic Approvals Board.

beaded screen A directionally reflective projection screen, whose surface is composed of minute glass or plastic spherical beads.

BEAMA British Electrical & Allied Manufacturers' Association.

bearding Defect in video reproduction in which the edges of dark

areas overflow into adjacent white areas; generally caused by overloading.

beat The cyclic combination in reinforcement and cancellation of two signals at slightly different frequencies, producing a third 'beat' frequency; see *Figure B.3*.

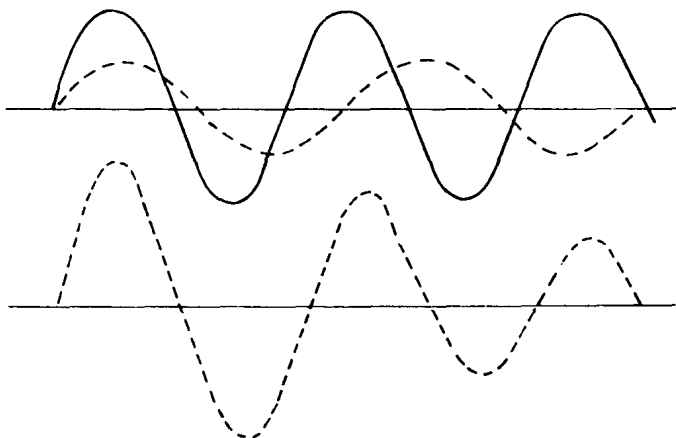


Figure B.3 Beat. Combination of two oscillations of slightly different frequencies produces a third beat frequency

bel Unit used for comparison of magnitudes, W_1 and W_2 , on a logarithmic scale, the magnitude difference in bels is $\log_{10}(W_1/W_2)$. The more commonly used form is the decibel, one-tenth of a bel.

Beta-format The tape format used in the *Betamax* system.

Betamax Video cassette system, using $\frac{1}{2}$ -inch tape. (Trade name)

bias In audio tape recording, an ultrasonic signal applied to the record head to reduce distortion.

bias trap High frequency filter to remove unwanted high frequency bias from the output or metering circuits of a magnetic recorder.

bidirectional microphone One with normally equal sensitivity to sound arriving from front or rear.

binary A system of numbering which uses only two states. These are usually expressed as 1 or 0 (one or zero).

binaural sound Sound recorded for headphone listening using two channels which incorporate phase-difference information.

binocular vision The ability to use both eyes in viewing a scene.

bipack Two films run in contact through a motion picture or rostrum camera; both may be *raw stock* simultaneously exposed or one may be exposed through a processed image on the other.

BISFA British Industrial and Scientific Film Association.

bistable An electronic circuit with two stable states, usually referred to as 0 and 1; it is the basic element of electronic counting in *binary*, and of electronic memories.

bit A single Binary digIT.

bit plane A computer graphics store for holding a digital representation of a display image as a pattern of bits.

bit slice A form of computer in which the *hardware* has been used in the manner of building blocks to make a central processor unit a chosen number of bits wide, usually in multiples of 2 or 4.

BKSTS British Kinematograph, Sound and Television Society.

black crush Electronically reduced TV black level, producing contrasty white for captions.

black level clamp Circuit which holds the black level of a TV picture at a fixed potential or brightness.

blank An opaque slide.

blanked vector A vector having no intensity, invoked in a line-drawing display in order to change the current position of the beam without drawing a line. See *vector graphics*.

blanking Period during TV picture formation when the scanning spot returns (a) from right to left after each line (horizontal blanking) and (b) from bottom to top after each field (vertical blanking) during which the picture information is suppressed.

blasting Explosive distortion due to the wind effect of breath on a microphone.

bleed Term used, generally in printing, where illustrations run off the printed page on one, or more, edges.

bleep An audible signal, generally of middle pitch.

bleeper The electrical or mechanical means of producing the bleep signal.

blimp A soundproof housing for a film camera.

blinking Alternately displaying and not displaying a title or object on the screen, usually to draw attention to it.

block A group of characters, words or records treated as a single unit in a computer storage system or in a transmission system.

blocking Saturation of an electronic circuit inhibiting the passage of signals.

blond A 2 kW spotlight.

blooming Coating the surfaces of a lens in order to reduce reflection losses.

blooping The technique of applying a special opaque ink, paint or tape. On a photographic sound-track it is a triangular opaque patch to eliminate noise caused by a join.

blow up To enlarge photographically.

blue backing shot In special effects, foreground action shot