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common winding (power and distribution transformers) (autotransformer) That part of the autotransformer winding that is common to both the primary and secondary circuits. *Synonym:* shunt winding.

(PE/TR) C57.15-1999, C57.12.80-1978r

communication (1) (data transmission) (electric systems) (telecommunications) The transmission of information from one point to another by means of electromagnetic waves.

(PE) 599-1985w

(2) The flow of information from one point, known as the source, to another, the receive.

(C) 610.10-1994w

communication access Passive and active attacks on information transmitted over communication channels and on the system's communication services themselves. This threat area assumes that an intruder has access to the communication media or the components (both hardware and software) that provide the communication services. (C/BA) 896.3-1993w

communication channel A facility that permits signaling between terminals.

(SUB/PE) 999-1992w

communicational cohesion A type of cohesion in which the tasks performed by a software module use the same input data or contribute to producing the same output data. *Contrast:* coincidental cohesion; functional cohesion; temporal cohesion; sequential cohesion; procedural cohesion; logical cohesion.

(C) 610.12-1990

communication band *See:* frequency band of emission.

communication circuits Electrical circuits supplying equipment and systems for voice, sound, or data transmission, such as telephone, engine order telegraph, data communication, interior communication, paging systems, wired music systems, fire and general alarm systems, smoke and fire detection systems, closed circuit television, navigational equipment, and microprocessor based automated alarm and control systems.

(IA/MT) 45-1998

communication conductor (measuring longitudinal balance of telephone equipment operating in the voice band) A conductor used in a communication network.

(COM/TA) 455-1985w

communication control character (1) A functional character intended to control or facilitate transmission over data networks. Control characters form the basis for character-oriented communications control procedures.

(LM/COM) 168-1956w

(2) (data management) *See also:* transmission control character.

(C) 610.5-1990w

communication facility (data transmission) Anything used or available for use in the furnishing of communication service.

(PE) 599-1985w

communication interface That part of the API devoted to communications with other application software, external data transport facilities, and devices.

(C/PA) 14252-1996

communication line *See:* telecommunication line.

communication lines (1) The conductors and their supporting or containing structures that are used for public or private signal or communication service, and which operate at potentials not exceeding 400 V to ground or 750 V between any two points of the circuit, and the transmitted power of which does not exceed 150 W. When operating at less than 150 V, no limit is placed on the transmitted power of the system. Under specified conditions, communication cables may include communication circuits exceeding the preceding limitation where such circuits are also used to supply power solely to communication equipment. *Note:* Telephone, telegraph, railroad-signal, data, clock, fire, police-alarm, cable television and other systems conforming with the above are included. Lines used for signaling purposes, but not included under the above definition, are considered as supply lines of the same voltage and are to be so installed. *See also:* electric supply lines.

(NESC/T&D) C2.2-1960

(2) The conductors and their supporting or containing structures that are used for public or private signal or communications service, and which operate at potentials not exceeding

400 V to ground or 750 V between any two points of the circuit, and the transmitted power of which does not exceed 150 W. When operating at less than a nominal voltage of 90 V, no limit is placed on the transmitted power of the system. Under specified conditions, communication cables may include communication circuits exceeding the preceding limitation where such circuits are also used to supply power solely to communications equipment. *Note:* Telephone, telegraph, railroad-signal, data, clock, fire, police-alarm, cable-television, and other systems conforming with the above are included. Lines used for signaling purposes, but not included under the above definition, are considered as supply lines of the same voltage and are to be so installed.

(NESC) C2-1997

communication provider A component of the system that provides the communications service through an endpoint.

(C) 1003.5-1999

communication reliability (mobile communication) A specific criterion of system performance related to the percentage of times a specified signal can be received in a defined area during a given interval of time. *See also:* mobile communication system.

(VT) [37]

communications architecture The hardware and software structure that facilitates the communications operations.

(C) 610.7-1995

communication satellite A satellite used for communication between two or more ground points by transmitting the messages to the satellite and retransmitting them to the participating ground station.

(COM) [24]

communications-based train control A continuous automatic train control system utilizing high-resolution train location determination, independent of track circuits; continuous, high capacity, bidirectional train-to-wayside data communications; and trainborne and wayside processors capable of implementing vital functions.

(VT/RT) 1474.1-1999

communications cable A cable that carries a low level of electric energy used for the transmission of communication frequencies. A telephone-type cable consists of two or more solid, insulated, twisted, paired and/or quadded, shielded or unshielded conductors ranging from No 19 to No 26 AWG, with either a shielded or unshielded sheath.

(PE/PSC) 789-1988w

communications common carrier (1) (data transmission) A company recognized by an appropriate regulatory agency as having a vested interest in furnishing communications services to the public at large.

(PE) 599-1985w

(2) In telecommunication, a public utility company that is recognized by an appropriate regulatory agency as having a vested interest in and responsibility for furnishing communications services to the general public. *Synonym:* common carrier.

(C) 610.7-1995

communications computer A computer that is specially designed to be an interface between another computer or terminal and a network, or to control data flow in a network. *See also:* switching computer; front-end computer; concentrator.

(C/COM) 610.7-1995, 168-1956w, 610.10-1994w

communications controller A dedicated computer that checks and manages data traffic through a network.

(C) 610.7-1995

communication security Protective measures for information transmitted between system components, over telecommunication links, and through networks to provide data confidentiality, integrity, and authenticity.

(C/BA) 896.3-1993w

communications endpoint *See:* endpoint.

communication services interface (CSI) The boundary across which access to services for interaction between internal application software entities and application platform external entities is provided.

(C/PA) 14252-1996

communications interface equipment (relays and relay systems associated with electric power apparatus) A portion of a relay system that transmits information from the relay logic to a communications link, or conversely to logic, for

resolution can either be obtained with a long aperture mounted along the axis of the aircraft [sidelooking airborne radar (SLAR)] or by the use of synthetic-aperture radar (SAR) processing. (AES/GCS) 686-1997, 172-1983w

side marker lights (illuminating engineering) Lamps indicating the presence of a vehicle when seen from the front and sometimes serving to indicate its width. When seen from the side they may also indicate its length. (EEC/IE) [126]

side panel (rotating machinery) A structure enclosing or partly enclosing one side of a machine. (PE) [9]

sidereal (navigation aids) Of or pertaining to the stars. (AES/GCS) 172-1983w

sidereal period (communication satellite) The time duration of one orbit measured relative to the stars. (COM) [19]

side relay armature An armature that rotates about an axis parallel to that of the core, with the pole face on a side surface of the core. (EEC/REE) [87]

side stream scrambling A data scrambling technique, used by 100BASE-T2, to randomize the sequence of transmitted symbols and avoid the presence of spectral lines in the signal spectrum. Synchronization of the scrambler and descrambler of connected PHYs is required prior to operation. (C/LM) 802.3-1998

side thrust (disk recording) (skating force) The radial component of force on a pickup arm caused by the stylus drag. *See also:* phonograph pickup. (SP) [32]

sidetone The acoustic output of a telephone set receiver due to an acoustic input to the transmitter of the same telephone set. *Note:* Where the handset is mounted on a test fixture that includes the artificial mouth and artificial ear, the definition includes transmission through the handset proper; there may be also some vibration effect that is expected to be insignificant for handsets of modern design. There are two types of sidetone to be considered: listener sidetone and talker sidetone. (COM/TA) 269-1992

sidetone objective loudness rating (loudness ratings of telephone connections)

$$\text{SOLR} = -20 \log_{10} \frac{S_E}{S_M}$$

where

S_M = sound pressure at the mouth reference point (in pascals)

S_E = sound pressure at the ear reference point (in pascals)

(COM/TA) 661-1979r

sidetone path loss (telephony) The difference in dB of the acoustic output level of the receiver of a given telephone set to the acoustic input level of the transmitter of the same telephone set. (COM/TA) 269-1971w

sidetone telephone set A telephone set that does not include a balancing network for the purpose of reducing sidetone. *See also:* telephone station. (EEC/PE) [119]

sidewalk elevator A freight elevator that operates between a sidewalk or other area exterior to the building and floor levels inside the building below such area, that has no landing opening into the building at its upper limit of travel, and that is not used to carry automobiles. *See also:* elevator. (EEC/PE) [119]

side-wall pressure The crushing force exerted on a cable during installation. (NESC) C2-1997

sideways sum (mathematics of computing) A sum obtained by adding the digits of a numeral without regard to position or significance. (C) 1084-1986w

siemens (metric practice) The electric conductance of a conductor in which a current of one ampere is produced by an electric potential difference of one volt. (QUL) 268-1982s

sievert (metric practice) The dose equivalent when the absorbed dose of ionizing radiation multiplied by the dimensionless factors Q (quality factor) and N (product of any other multiplying factors) stipulated by the International Commission on Radiological Protection is one joule per kilogram. (QUL) 268-1982s

sifting sort *See:* bubble sort.

sigma (σ) The term sigma designates a group of telephone wires, usually the majority or all wires of a line, that is treated as a unit in the computation of noise or in arranging connections to ground for the measurement of noise or current balance ratio. (PE/EEC) [119]

sign (1) (power or energy) Positive, if the actual direction of energy flow agrees with the stated or implied reference direction; negative, if the actual direction is opposite to the reference direction. *See also:* network analysis. (Std100) 270-1966w

(2) (test, measurement, and diagnostic equipment) The symbol that distinguishes positive from negative numbers. (MIL) [2]

(3) *See also:* electric sign. (NESC) [86]

signal (1) (signals and paths) (microcomputer system bus) The physical representation of data. (MM/C) 796-1983r

(2) (signals and paths, 696 interface devices) The physical representation which conveys data from one point to another. For the purpose of IEEE Std 696-1983, this applies to digital electrical signals only. (MM/C) 696-1983w

(3) (A) (data transmission) A visual, audible or other indication used to convey information. **(B) (data transmission)** The intelligence, message or effect to be conveyed over a communication system. **(C) (data transmission)** A signal wave; the physical embodiment of a message. (PE/PSCC) 599-1985

(4) (overhead-power-line corona and radio noise) The intelligence, message, or effect conveyed over a communication system. (T&D/PE) 539-1990

(5) (programmable instrumentation) The physical representation of information. *Note:* For the purposes of IEEE Std 488.1-1987, this term refers to digital electrical signals only. (IM/AIN) 488.1-1987r

(6) (computers) The event or phenomenon that conveys data from one point to another. (C) [20], [85]

(7) Information about a variable that can be transmitted in a system. (IA/CTL/IAC) [60]

(8) (telephone switching systems) An audible, visual or other indication of information. (C) [85]

(9) A phenomenon (visual, audible, or otherwise) used to convey information. The signal is often coded, such as a modulated waveform, so that it requires decoding to be intelligible. (CAS) [13]

(10) (SBX bus) The physical representation of a logical value. (C/MM) 959-1988r

(11) (STEBus) The physical representation of data. (C/MM) 1000-1987r

(12) Any communication between message-based devices consisting of a write to a signal register. (C/MM) 1155-1992

(13) A measurable quantity (e.g., a voltage) which varies in time in order to transmit information. A signal propagates along a wire or an optic fiber. It is interpreted as a sequence of bits, which is grouped into a sequence of characters by the character layer of the protocol stack. Signals are generated by a link output and are absorbed by a link input. (C/BA) 1355-1995

(14) In networking, an electrical pulse that conveys information through a transmission medium. *See also:* baseband signaling; digital signal; analog signal; broadband signaling; out-of-band signaling. (C) 610.7-1995

(15) (A) A variation of a physical quantity, used to convey data. **(B)** A time-dependent value attached to a physical phenomenon and conveying data. (C/Std100) 610.10-1994

(16) A mechanism by which a process may be notified of, or affected by, an event occurring in the system. Examples of such events include hardware exceptions and specific actions by processes or threads. The term *signal* is also used to refer to the event itself. (C/PA) 9945-1-1996, 9945-2-1993

(17) (A) The behavior controlled or observed by a test resource. **(B)** A visual, audible, or other indication used to convey information. (SCC20) 1226-1998

(18) A point in the design from which a stimulus may be directly applied or a response directly measured.

(C/TT) 1450-1999

(19) A mechanism by which a process may be notified of, or affected by, an event occurring in the system. Examples of such events include hardware exceptions and specific actions by processes. The term *signal* is also used to refer to the event itself.

(C) 1003.5-1999

signal, actuating *See*: actuating signal.

signal aspect The appearance of a fixed signal conveying an indication as viewed from the direction of an approaching train: the appearance of a cab signal conveying an indication as viewed by an observer in the cab.

(EEC/PE) [119]

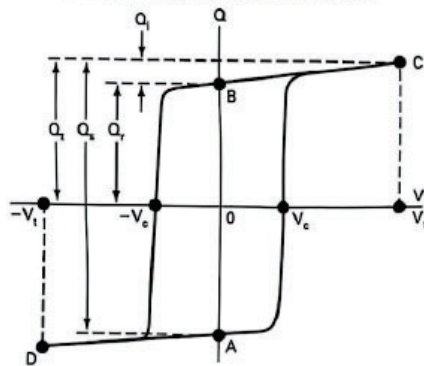
signal assertion A) The act of driving a signal to the true state. B) The act of driving a bus of signals to the correct pattern of ones and zeros.

(C/BA) 1496-1993w

signal back light A light showing through a small opening in the back of an electrically lighted signal, used for checking the operation of the signal lamp.

(EEC/PE) [119]

signal charge The charge that flows when the condition of the device is changed from that of zero applied voltage (after having previously been saturated with either a positive or negative voltage) to at least that voltage necessary to saturate in the reverse sense. *Note*: The signal charge Q_s equals the sum of Q_r and Q_i , as illustrated in the corresponding figure. It is dependent on the magnitude of the applied voltage, which should be specified in describing this characteristic of ferroelectric devices. *See also*: ferroelectric domain.



Hysteresis loop for a ferroelectric device.

signal charge

(UFFC) 180w

signal circuit (1) Any electric circuit that supplies energy to an appliance that gives a recognizable signal. Such circuits include circuits for door bells, buzzers, code-calling systems, signal lights, and the like. *See also*: appliance.

(NESC) [86]

(2) (protective relay system) Any circuit other than input voltage circuits, input current circuits, power supply circuits, or those circuits that directly or indirectly control power circuit breaker operation.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

(3) (protective relay system) Any circuit other than an input voltage circuit, input current circuit, power supply circuit, or an output circuit.

(PE/PSR) C37.90.1-1989r

signal conditioning Sensor signal processing involving operations such as amplification, compensation, filtering, and normalization.

(IM/ST) 1451.2-1997

signal contrast (facsimile) The ratio expressed in decibels between white signal and black signal. *See also*: facsimile signal.

(COM) 168-1956w

signal converter (test, measurement, and diagnostic equipment) A device for changing a signal from one form or value to another form or value.

(MIL) [2]

signal current (diode-type camera tube) The change in target current which occurs when the target is irradiated with photons, or electrons, compared to the case where no radiation is incident on the target.

(ED) 503-1978w

signal decay time (measuring the performance of tone address signaling systems) The time interval between the end of the signal present condition and the beginning of the signal off condition at the end of the signal under consideration.

(COM/TA) 752-1986w

signal decorrelation time *See*: decorrelation time.

signal delay The transmission time of a signal through a network. The time is always finite, may be undesired, or may be purposely introduced. *See also*: oscillograph; delay line.

(IM/HFIM) [40]

signal, difference *See*: differential signal.

signal distance (1) (computers) The number of digit positions in which the corresponding digits of two binary words of the same length are different. *See also*: hamming distance.

(COM/C) 312-1977w, [20]

(2) (mathematics of computing) *See also*: hamming distance.

(C) 1084-1986w

signal distributing (telephone switching systems) Delivering of signals from a common control to other circuits.

(COM) 312-1977w

signal-driven mode A mode of operation in which the signal `POSIX.Signals.Signal_IO` is sent to the owner of a socket whenever an I/O operation becomes possible on that socket. In this mode, `POSIX.Signals.Signal_IO` is sent when additional data could be sent on the socket, when new data arrives to be received on a socket, or a state transition occurs that would allow a send or receive call to return status without blocking. Signal-driven mode is enabled by setting the `POSIX.IO.Signal_When_Socket_Ready` flag on the socket and disabled by resetting the `POSIX.IO.Signal_When_Socket_Ready` flag. The default mode for signal driven mode is disabled.

(C) 1003.5-1999

signal duration (measuring the performance of tone address signaling systems) The time interval during which a signal present condition exists continuously.

(COM/TA) 752-1986w

signal electrode (camera tubes) An electrode from which the signal output is obtained. *See also*: electrode.

(BT/AV) [34]

signal electronics power (thyristor converter) The power used for the analog or digital system power supplies, or both, required for the thyristor converter control and protection systems.

(IA/IPC) 444-1973w

signal element (1) (unit interval) (data transmission) The part of a signal that occupies the shortest interval of signaling code. It is considered to be of unit duration in building up signal combinations.

(PE) 599-1985w

(2) The logical signal during one half of a bit time which may take on the values of `Logic_1` or `Logic_0`.

(C/LM) 8802-5-1998

signal, error *See*: error signal.

signal, feedback *See*: feedback signal.

signal flow graph (network analysis) A network of directed branches in which each dependent node signal is the algebraic sum of the incoming branch signals at that node. *Note*: Thus,

$$x_1 t_{1k} + x_2 t_{2k} + \dots + x_n t_{nk} = x_k$$

at each dependent node k , where t_{jk} is the branch transmittance of branch jk .

(CAS) 155-1960w

signal frequency shift (frequency-shift facsimile system) The numerical difference between the frequencies corresponding to white signal and black signal at any point in the system. *See also*: facsimile signal.

(COM) 168-1956w

signal generator A shielded source of voltage or power, the output level and frequency of which are calibrated, and usually variable over a range. *Note*: The output of known waveform is normally subject to one or more forms of calibrated modulation.

(IM/HFIM) [40]

signal ground For the purpose of this guide, shall be the grounding system to which signals are referenced.

(PE/EDPG) 1050-1996