IEEE 100
The Authoritative Dictionary of IEEE Standards Terms

Seventh Edition

IEEE
Published by
Standards Information Network
IEEE Press

The Institute of Electrical and Electronics Engineering, Inc.
3 Park Avenue, New York, NY, 10016-5997, USA

To order IEEE Press publications, call 1-800-678-IEEE.

Print: ISBN 0-7381-2601-2 *SP1122*

See other standards and standards-related product listings at: http://standards.ieee.org/

Library of Congress Cataloging-in-Publication Data

IEEE 100 : the authoritative dictionary of IEEE standards terms.—7th ed.
p. cm.
ISBN 0-7381-2601-2 (paperback : alk. paper)
1. Electric engineering—Dictionaries. 2. Electronics—Dictionaries. 3. Computer engineering—Dictionaries. 4. Electric engineering—Acronyms. 5. Electronics—Acronyms. 6. Computer engineering—Acronyms. I. Institute of Electrical and Electronics Engineers.

TK9 .I28 2000
621.3′03—dc21 00-050601

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 place 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-alarms, 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, andauthenticity. (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

example, audio tone equipment, a carrier transmitter-receiver when an integral part of the relay system. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

communications link (relays and relay systems associated with electric power apparatus) Any of the communications media, for example, microwave, power line carrier, wire line. (PE/PSR) C37.90-1978s

communications network A network of communication circuits managed as a single unit. *See also:* computer network; value-added network. (C) 610.7-1995

communications processor A computer that performs protocol (terminates one or more protocols layers) or network management functions. (C) 610.7-1995

communications user An application that uses process-to-process communication services. (C) 1003.5-1999

communications zone The area of space within which a beacon can communicate with transponders in or on passing vehicles. (SCC32) 1455-1999

communications security The use of administrative, technical, or physical measures to deny unauthorized persons information from a computer or a communications network and to ensure the authenticity and integrity of such communications. (C) 610.7-1995

communication theory (data transmission) The mathematical theory underlying the communication of messages from one point to another. (PE) 599-1985w

community antenna television (CATV) *See:* cable TV.

community antenna television (CATV)-type broadband medium A broadband system comprising coaxial cables, taps, splitters, amplifiers, and connectors the same as those used in CATV or cable television installations. (C/LM) 802.3-1998

community dial office (telephone switching systems) A small automatic central office that serves a separate exchange area that ordinarily has no permanently assigned central office operating or maintenance forces. (COM) 312-1977w

community-of-interest (telephone switching systems) A characteristic of traffic resulting from the calling habits of the customers. (COM) 312-1977w

commutated antenna direction finder (CADF) (navigation aid terms) A system using a multiplicity of antennas in a circular array and a receiver which is connected to the antennas in sequence through a commutating device for finding the direction of arrival of radio waves; the directional sensing is related to phase shift that occurs as a result of the communication. (AES/GCS) 172-1983w

commutating angle (1) (rectifier circuits) The time, expressed in degrees, during which the current is commutated between two rectifying elements. *See also:* rectifier circuit element; rectification. (IA) [62]

(2) (thyristor converter circuit) (μ) The time, expressed in degrees (one cycle of the ac wave form—360°), during which the current is commutated between two thyristor converter circuit elements. (IA/IPC) 444-1973w

commutating capacitor (converter circuit elements) (self-commutated converters) A capacitor that provides commutating voltage for circuit-commutated thyristors in a self-commutated converter. (IA/SPC) 936-1987w

commutating-field winding An assembly of field coils, located on the commutating poles, that produces a field strength approximately proportional to the load current. The commutating field is connected in direction and adjusted in strength to assist the reversal of current in the armature coils for successful commutation. This field winding is used along, or supplemented by, a compensating winding. *See also:* asynchronous machine. (EEC/PE) [119]

commutating group (1) (rectifier circuits) A group of rectifier-circuit elements and the alternating-voltage supply elements conductively connected to them in which the direct current of the group is commutated between individual elements that conduct in succession. *See also:* rectifier; rectification; circuit element. (IA) [62]

(2) A group of thyristor converter circuit elements and the alternating-voltage supply elements conductively connected to them in which the direct current of the group is commutated between individual elements that conduct in succession. (IA/IPC) 444-1973w

commutating impedance (1) (rectifier transformer) The impedance that opposes the transfer of current between two direct-current winding terminals of a commutating group, or a set of commutating groups. *See also:* rectifier transformer. (Std100) C57.18-1964w

(2) (rectifier transformer) The impedance that opposes the transfer of current between two secondary winding terminals of a commutating group, or a set of commutating groups. (PE/TR) C57.18.10-1998

commutating period (inverters) The time during which the current is commutated. *See also:* self-commutated inverters. (IA) [62]

commutating pole (interpole) An auxiliary pole placed between the main poles of a commutating machine. Its exciting winding carries a current proportional to the load current and produces a flux in such a direction and phase as to assist the reversal of the current in the short-circuited coil. (EEC/PE) [119]

commutating reactance (thyristor converter) The reactance that effectively opposes the transfer of current between thyristor converter circuit elements of a commutating group or set of commutating groups. *Note:* For convenience, the reactance from phase to neutral, or one half the total reactance in the commutating circuit, is the value usually employed in computations, and is designated as the commutating reactance. (IA/IPC) 444-1973w

commutating reactance factor (rectifier circuits) The line-to-neutral commutating reactance in ohms multiplied by the direct current commutated and divided by the effective (root-mean-square) value of the line-to-neutral voltage of the transformer direct-current winding. *See also:* circuit element; rectification. (IA) [62]

commutating reactance transformation constant A constant used in transforming line-to-neutral commutating reactance in ohms on the direct-current winding to equivalent line-to-neutral reactance in ohms referred to the alternating-current winding. *See also:* rectification. (IA) [62]

commutating reactor (1) (converter circuit elements) (commutating inductor) (self-commutated converters) An inductor having one or more windings that modifies or couples the transient current produced by the commutating voltage. (IA/SPC) 936-1987w

(2) (power and distribution transformers) A reactor used primarily to modify the rate of current transfer between rectifying elements. (PE/TR) C57.12.80-1978r

commutating resistance (rectifier transformer) The resistance component of the commutating impedance. *See also:* rectifier transformer. (Std100) C57.18-1964w

commutating voltage (1) (self-commutated converters) (circuit properties) The voltage that causes the current to commutate from one switching branch to another. *Notes:* 1. In an internally commutated converter, the commutating voltage is supplied by an ac (alternating current) source outside the converter. 2. In a self-commutated converter using switching devices that have turn-off capability, such as power transistors or gate turn-off thyristors, the commutating voltage results from the interruption of current in the outgoing device branch. 3. In a self-commutated converter using circuit-commutated thyristors, the commutating voltage is usually supplied by capacitors. (IA/SPC) 936-1987w

(2) (ac adjustable-speed drives) The voltage that causes the current to commutate from one switching branch to another. *Note:* In an externally commutated converter, the commutating voltage is supplied by an ac source outside the converter. (IA/ID) 995-1987w

commutation (1) (circuit properties) (ac adjustable-speed drives) (self-commutated converters) The transfer of

radio button A visual user interface control used to represent one of a group of mutually exclusive settings. When a radio button is selected, a visual indication is provided to indicate it is the selected button. (C) 1295-1993w

radio channel (data transmission) A band of frequencies of a width sufficient to permit its use for radio communication. *Note:* The width of the channel depends on the type of transmission and the tolerance for the frequency of emission. Normally allocated for radio transmission in a specified type of service or by a specified transmitter. (AP/PE/ANT) 145-1983s, 599-1985w

radio circuit A means for carrying out one radio communication at a time in either or both directions between two points. *See also:* radio transmission; radio channel. (EEC/PE) [119]

radio compass A direction-finder used for navigational purposes. *See also:* radio navigation. (EEC/PE) [119]

radio compass indicator A device that, by means of a radio receiver and rotatable loop antenna, provides a remote indication of the relationship between a radio bearing and the heading of the aircraft. (EEC/PE) [119]

radio compass magnetic indicator A device that provides a remote indication of the relationship between a magnetic bearing, radio bearing, and the aircraft's heading. (EEC/PE) [119]

radio control The control of mechanism or other apparatus by radio waves. *See also:* radio transmission. (EEC/PE) [119]

radio detection (radio warning) The detection of the presence of an object by radiolocation without precise determination of its position. *See also:* radio transmission. (EEC/PE) [119]

radio direction-finder (RDF) (navigation aid terms) A device used to determine the direction of arrival of radio signals. *Note:* At one time this term was used by the British to mean radio distance-finding—that is, radar. (AES/GCS) 172-1983w

radio direction finding (navigation aid terms) A procedure for determining the bearing, at a receiving point, of the source of a radio signal by observing the direction of arrival and other properties of the signal. (AES/GCS) 172-1983w

radio distress signal (SOS) Radiotelegraph distress signal consists of the group . . . --- . . . in Morse code, transmitted on prescribed frequencies. The radiotelephone distress signal consists of the spoken words May Day (*m'aidez* = help me). *Note:* By international agreement, the effect of the distress signal is to silence all radio traffic that may interfere with distress calls. (EEC/PE) [119]

radio disturbance An electromagnetic disturbance in the radio-frequency range. *See also:* radio interference; radio noise. (EMC) [53]

radio Doppler The direct determination of the radial component of the relative velocity of an object by an observed frequency change due to such velocity. *See also:* radio transmission. (EEC/PE) [119]

radio fadeout (Dellinger effect) A phenomenon in radio propagation during which substantially all radio waves that are normally reflected by ionospheric layers in or above the E region suffer partial or complete absorption. *See also:* radiation. (EEC/PE) [119]

radio field strength The electric or magnetic field strength at a radio frequency. *Synonym:* field strength. (AP/PROP) 211-1997

radio frequency (RF) (1) (A) (data transmission) (Loosely) The frequency in the portion of the electromagnetic spectrum that is between the audio-frequency portion and the infrared portion. **(B) (data transmission)** A frequency useful for radio transmission. *Note:* The present practicable limits of radio frequency are roughly 10 kHz (kilohertz) to 100 000 MHz (megahertz). Within this frequency range electromagnetic radiation may be detected and amplified as an electric current at the wave frequency. (PE) 599-1985

(2) (power line filters) A frequency in the portion of the electromagnetic spectrum that is between the audio frequency portion and the infrared portion. (EMC) C63.13-1991

(3) A frequency in the radio spectrum. *See also:* radio spectrum. (AP/PROP) 211-1997

(4) A frequency that is useful for radio transmission. (NIR) C95.1-1999

(5) (A) (Loosely) The frequency in the portion of the electromagnetic spectrum that is between the audio-frequency portion and the infrared portion. **(B)** A frequency useful for radio transmission. *Note:* The present practicable limits of radio frequency are roughly 10 kHz to 100 000 MHz. Within this frequency range, electromagnetic radiation may be detected and amplified as an electric current at the wave frequency. (EMB/MIB) 1073.3.2-2000

radio-frequency absorber A material designed to absorb electromagnetic energy. The material may have a flat face or may be formed into pyramids, wedges, or cones. Radar absorber material is commonly referred to as RAM. (EMC) 1128-1998

radio-frequency alternator A rotating-type generator for producing radio-frequency power. (AP/ANT) 145-1983s

radio-frequency attenuator (signal-transmission system) A low-pass filter that substantially reduces the radio-frequency power at its output relative to that at its input, but transmits lower-frequency signals with little or no power loss. *See also:* signal. (IE) [43]

radio-frequency converter A power source for producing electric power at a frequency of 10 kHz and above. (IE/IA) 169-1955w

radio-frequency electric current hazard advisory symbol Refers to the overall design and shape shown in the figure below.

RF electric current hazard advisory symbol

radio-frequency (RF) electric current hazard advisory symbol (NIR/SCC28) C95.2-1999

radio-frequency energy Includes radio frequency fields and radiation with frequencies between 3 kHz and 300 GHz, and includes microwave frequencies. (NIR/SCC28) C95.2-1999

radio-frequency energy advisory symbol Refers to the overall design, and shape shown in the figure below.

RF energy advisory symbol

radio-frequency (RF) energy advisory symbol (NIR/SCC28) C95.2-1999

radio-frequency generator (1) (signal-transmission system) A source of radio-frequency energy. (IE) [43]
(2) (induction heating) A power source for producing electric power at a frequency of 10 kHz and above. (IA) 54-1955w

radio-frequency generator, electron tube type (induction and dielectric usage) A power source comprising an electron-tube oscillator, an amplifier if used, a power supply and associated control equipment. *See also:* magnetron; Colpitts oscillator; tuned grid-tuned plate oscillator; Hartley oscillator. (IA) 54-1955w

radio-frequency hot spot A highly localized area of relatively more intense radio-frequency radiation that manifests itself in two principal ways:

a) The presence of intense electric or magnetic fields immediately adjacent to conductive objects that are immersed in lower intensity ambient fields (often referred to as re-radiation), and
b) Localized areas, not necessarily immediately close to conductive objects, in which there exists a concentration of radio-frequency fields caused by reflections and/or narrow beams produced by high-gain radiating antennas or other highly directional sources. In both cases, the fields are characterized by very rapid changes in field strength with distance.

RF hot spots are normally associated with very nonuniform exposure of the body (partial body exposure). This is not to be confused with an actual thermal hot spot within the absorbing body. (NIR) C95.1-1999

radio frequency interference (RFI) *See:* radio interference.

radio frequency link (test, measurement, and diagnostic equipment) A radio frequency channel or channels used to connect the unit under test with the testing device. *Synonym:* RF link. (MIL) [2]

radio frequency protection guides (radio frequency electromagnetic fields) The radio frequency field strengths or equivalent plane wave power densities which should not be exceeded without:

a) careful consideration of the reasons for doing so,
b) careful estimation of the increased energy deposition in the human body, and
c) careful consideration of the increased risk of unwanted biological effects.

(NIR) C95.1-1982s

radio-frequency pulse A radio-frequency carrier amplitude modulated by a pulse. The amplitude of the modulated carrier is zero before and after the pulse. *Note:* Coherence of the carrier (with itself) is not implied. (IM/WM&A) 194-1977w

radio-frequency switching relay A relay designed to switch frequencies that are higher than commercial power frequencies with low loss. (PE/EM) 43-1974s

radio-frequency system loss (mobile communication) The ratio expressed in decibels of the power delivered by the transmitter to its transmission line to the power required at the receiver-input terminals that is just sufficient to provide a specified signal-to-noise ratio at the audio output of the receiver. *See also:* mobile communication system. (VT) [37]

radio-frequency transformer A transformer for use with radio-frequency currents. *Note:* Radio-frequency transformers used in broadcast receivers are generally shunt-tuned devices that are tunable over a relatively broad range of frequencies. *See also:* radio transmission. (CHM) [51]

radio gain (radio-wave propagation) Of a radio system, the reciprocal of the system loss. (AP) 211-1977s

radio horizon (1) (data transmission) (of an antenna) The locus of the farthest points at which direct rays from the antenna become tangential to the planetary surface. *Note:* On a spherical surface the horizon is a circle. The distance to the horizon is affected by atmospheric reflection. (AP/ANT) 145-1983s
(2) The locus of points at which the direct rays from a point source of radio waves are tangent to the surface of the Earth. *Note:* In general, the radio and geometric horizons differ because of atmospheric refraction. (AP/PROP) 211-1997

radio-influence field (RIF) Radio-influence field is the radio noise field emanating from an equipment or circuit, as measured using a radio noise meter in accordance with specified methods. *See also:* electromagnetic compatibility. (EMC/CHM) [51]

radio-influence tests Tests that consist of the application of voltage and the measurement of the corresponding radio-influence voltage produced by the device being tested. (SWG/PE) C37.40-1981s, C37.100-1992

radio-influence voltage (RIV) (1) (outdoor apparatus bushings) A high-frequency voltage generated as a result of ionization, which may be a propagated by conduction, induction, radiation or a combined effect of all three. (PE/TR) 21-1976
(2) (high-voltage ac cable terminations) The radio noise appearing on conductors of electric equipment or circuits, as measured using a radio-noise meter as a two-terminal voltmeter in accordance with specified methods. (PE/IC) 48-1996
(3) (overhead-power-line corona and radio noise) The radio frequency voltage appearing on conductors of electrical equipment or circuits, as measured using a radio noise meter as a two-terminal voltmeter in accordance with specified methods (generally termed conducted measurements). *Note:* The term *influence* was coined to avoid the general admission that power systems would generate and conduct interference. The term *influence* is used only in North America; the term *interference* is preferred elsewhere. (T&D/PE) 539-1990
(4) (power and distribution transformers) A radio frequency voltage generally produced by partial discharge and measured at the equipment terminals for the purpose of determining the electromagnetic interference effect of the discharges. *Notes:* 1. "RIV" can be measured with a coupled radio interference measuring instrument and is commonly measured at approximately 1 MHz, although a wide frequency range is involved. 2. "RIV" values are often used as an "index" of "partial discharge" intensity. 3. The RIV of equipment was historically measured to determined the influence of energized equipment on radio broadcasting, hence—RIV. (PE/TR) C57.12.80-1978r
(5) A high-frequency voltage, generated by all sources of ionization current, that appears at the terminals of electric-power apparatus or on power circuits. (SPD/PE) C62.11-1999

radio interference Degradation of the reception of a wanted signal caused by radio frequency (RF) disturbance. *Notes:* 1. RF disturbance is an electromagnetic disturbance having components in the RF range. 2. The words "interference" and "disturbance" are often used indiscriminately. The expression "radio frequency interference" is also commonly applied to an RF disturbance or an unwanted signal. *Synonym:* radio frequency interference. (EMB/T&D/PE/MIB) 1073.3.2-2000, 539-1990

radio interferometer A type of radio telescope that uses two or more physically separated collecting elements in order to achieve high angular resolution of the brightness temperature distribution of a radio source. (AP/PROP) 211-1997

radiolocation (navigation aid terms) Position determination by means of radio aids for purposes other than those of navigation. (AES/GCS) 172-1983w

radio magnetic indicator (RMI) (navigation aid terms) A combined indicating instrument which converts omnibearing indications to a display resembling an ADF (automatic direc-

plicitly in a transaction-initiation message and returned in a transaction-completion message. (C/MM) 1212.1-1993

transaction initiation (request) A request generated by the initiator to start an action by the responder. An initiation message usually transfers a command and sometimes data. For a disk read I/O transaction, for example, the initiation transfers the address and command. (C/MM) 1212.1-1993

transaction, I/O *See:* I/O transaction.

transaction layer (1) The layer above the packet layer for use by applications. It is unspecified in this standard. *See also:* transaction. (C/BA) 1355-1995

(2) The layer, in a stack of three protocol layers defined for the Serial Bus, that defines a request-response protocol to perform bus operations of type read, write, and lock. (C/MM) 1394-1995

transaction matrix A matrix that identifies possible requests for database access and relates each request to information categories or elements in the database. (C) 610.12-1990

transaction record A record, representing one transaction, used to process data stored in a master file. *See also:* update transaction; null transaction; change transaction; delete transaction; add transaction. (C) 610.2-1987

transactor A magnetic device with an air-gapped core having an input winding which is energized with an alternating current and having an output winding which produces a voltage that is a function of the input current. *Note:* The term "transactor" is a contraction of the words "transformer" and "reactor." (SWG/PE/PSR) C37.110-1996, C37.100-1992

transadmittance For harmonically varying quantities at a given frequency, the ratio of the complex amplitude of the current at one pair of terminals of a network to the complex amplitude of the voltage across a different pair of terminals. *See also:* interelectrode transadmittance. (IM/HFIM) [40]

transadmittance compression ratio (electron tube) The ratio of the magnitude of the small-signal forward transadmittance of the tube to the magnitude of the forward transadmittance at a given input signal level. (ED) 161-1971w

transadmittance, forward *See:* forward transadmittance.

transceiver (1) (data transmission) The combination of radio transmitting and receiving equipment in a common housing, usually for portable or mobile use, and employing common circuit components for both transmitting and receiving. (PE) 599-1985w

(2) (navigation aids) A combination transmitter and receiver in a single housing, with some components being used by both parts. *See also:* transponder. (AES/GCS) 172-1983w

(3) (A) A device that both transmits and receives data. **(B)** A device that connects a host interface to a network. **(C)** A device that applies electronic signals to the cable and may sense collisions. *Note:* Definition (C) is contextually specific to IEEE Std 802.3. (C) 610.7-1995

transceiver cable A four-pair, shielded cable which interconnects a workstation to a transceiver or fan-out box. *Note:* This term is contextually specific to IEEE Std 802.3. *See also:* coaxial cable; trunk cable; drop cable; attachment unit interface cable. (C) 610.7-1995

transceiver chatter *See:* chatter.

transconductance The real part of the transadmittance. *Note:* Transconductance is, as most commonly used, the interelectrode transconductance between the control grid and the plate. At low frequencies, transconductance is the slope of the control-grid-to-plate transfer characteristic. *See also:* interelectrode transconductance; electron-tube admittances. (ED) 161-1971w

transconductance meter (mutual-conductance meter) An instrument for indicating the transconductance of a grid-controlled electron tube. *See also:* instrument. (EEC/PE) [119]

transcribe (electronic computation) To convert data recorded in a given medium to the medium used by a digital computing machine or vice versa. (C) 162-1963w

transcriber (electronic computation) Equipment associated with a computing machine for the purpose of transferring input (or output) data from a record of information in a given language to the medium and the language used by a digital computing machine (or from a computing machine to a record of information). (Std100) 270-1966w

transducer (1) (electrical heating applications to melting furnaces and forehearths in the glass industry) A device that is actuated by power from one system and supplies power in any other form to a second system. (IA) 668-1987w

(2) (communication and power transmission) A device by means of which energy can flow from one or more transmission systems or media to one or more other transmission systems or media. *Note:* The energy transmitted by these systems or media may be of any form (for example, it may be electric, mechanical, or acoustical), and it may be of the same form or different forms in the various input and output systems or media. (MIL/C/AP/ANT) [2], [85], 145-1983s

(3) (metering) A device to receive energy from one system and supply energy (of either the same or of a difference kind) to another system, in such a manner that the desired characteristics of the energy input appear at the output. (ELM) C12.1-1988

(4) (thyristor) A device which under the influence of a change in energy level of one form or in one system, produces a specified change in energy level of another form or in another system. (IA/IPC) 428-1981w

(5) A device for converting energy from one form to another. (C) 610.10-1994w

(6) A device converting energy from one domain into another. The device may either be a sensor or an actuator. (IM/ST) 1451.2-1997

(7) A device converting energy from one domain into another, calibrated to minimize the errors in the conversion process. A sensor or an actuator. (IM/ST) 1451.1-1999

transducer, active *See:* active transducer.

Transducer Block An instance of a subclass of `IEEE1451_TransducerBlock`. (IM/ST) 1451.1-1999

transducer conversion loss The ratio of the SAW power generated in the substrate at the transducer output to the power available in the circuit at the transducer input in decibels. (UFFC) 1037-1992w

Transducer Electronic Data Sheet (TEDS) (1) A data sheet describing a transducer stored in some form of electronically readable memory. (IM/ST) 1451.2-1997

(2) Several of the IEEE 1451.X standards use TEDS to provide a machine-readable specification of the characteristics of the transducer interface. (IM/ST) 1451.1-1999

transducer gain (1) The ratio of the power that the transducer delivers to the specified load under specified operating conditions to the available power of the specified source. *Notes:* 1. If the input and/or output power consist of more than one component, such as multifrequency signals or noise, then the particular components used and their weighting must be specified. 2. This gain is usually expressed in decibels. *See also:* transducer. (Std100) 270-1966w

(2) (two-port linear transducer) At a specified frequency, the ratio of the actual signal power transferred from the output port of the transducer to its load, to the available signal power from the source driving the transducer. (ED) 161-1971w

transducer, ideal *See:* ideal transducer.

Transducer Independent Interface The digital interface used to connect a Smart Transducer Interface Module to a Network Capable Application Processor. (IM/ST) 1451.2-1997

transducer interface The physical connection by which a transducer communicates with the control or data systems that it is a member of, including the physical connector, the signal wires used and the rules by which information is passed across the connection. (IM/ST) 1451.2-1997

transducer, line *See:* line transducer.

transducer loss The ratio of the available power of the specified source to the power that the transducer delivers to the speci-