EXHIBIT 21

The New IEEE Standard Dictionary of Electrical and Electronics Terms

[Including Abstracts of All Current IEEE Standards]

Fifth Edition

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normally characterized by a voltage drop in the immediate vicinity of the cathode approximately equal to the ionization potential of the gas. *See:* **gas tube.** 161-1971w

arc-back (gas tube). A failure of the rectifying action, which results in the flow of a principal electron stream in the reverse direction, due to the formation of a cathode spot on an anode. *See:* **gas tubes; rectification.** 161-1971w

arc cathode (gas tube). A cathode whose electron emission is self-sustaining, with a small voltage drop approximately equal to the ionization potential of the gas. *See:* **gas-filled rectifier.** [84]

arc chute (of a switching device) (power switchgear). A structure affording a confined space or passageway, usually lined with arc-resisting material, into or through which an arc is directed to extinction. C37.100-1981

arc, clockwise (numerically controlled machines). An arc generated by the coordinated motion of two axes in which curvature of the path of the tool with respect to the workpiece is clockwise when viewing the plane of motion in the negative direction of the perpendicular axis. [61]

arc converter. A form of negative-resistance oscillator utilizing an electric arc as the negative resistance. *See:* **radio transmission.** 182-1961w

arc, counterclockwise (numerically controlled machines). An arc generated by the coordinated motion of two axes in which curvature of the path of the tool with respect to the workpiece is counterclockwise, when viewing the plane of motion in the negative direction of the perpendicular axis. [61]

arc current (gas tube surge arrester) (gas-tube surge-protective devices). The current that flows after breakdown when the circuit impedance allows a current that exceeds the glow-to-arc transition current. *Syn:* **arc mode current.** C62.31-1987, [8]

arc discharge (1) (illuminating engineering). An electric discharge characterized by high cathode current densities and a low voltage drop at the cathode. [127]
(2) (nonlinear, active, and nonreciprocal waveguide components). Commonly refers to weakly ionized plasma created by a radio-frequency (rf) discharge in gas tubes, receiver protectors, or duplexers. 457-1982

arc-discharge tube (valve). A gas-filled tube or valve in which the required current is that of an arc discharge. C37.90-1978

arc-drop loss (gas tube). The product of the instantaneous values of the arc-drop voltage and current averaged over a complete cycle of operation. *See:* **gas tube.** 161-1971w

arc-drop voltage (gas tube). The voltage drop between the anode and cathode of a rectifying

device during conduction. *See:* **electrode voltage; tube voltage drop (electron tube).** [45]

arc-extinguishing medium (fuse filler) (of a fuse) (power switchgear). Material included in the fuse to facilitate current interruption. C37.40-1981, C37.100-1981

arc furnace. An electrothermic apparatus the heat energy forwhich is generated by the flow of electric current through one or morearcs internal to the furnace. *See:* **electrothermics.** [119]

arc gap (microwave receiver protector). *See:* **resonant gap.**

architectural design (software). (A) The process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system. *See also:* **functional design.** (B) The result of the process in (A). 610.12-1990

architecture (1) (computers). The organizational structure of a system or component. *See also:* **component; module; subprogram; routine.** 610.12-1990
(2). *See:* **program architecture; system architecture.**

archival database. A copy of a database saved for later reference or use. 610.5-1990

arcing chamber (expulsion-type arrester). The part of an expulsion-type arrester that permits the flow of discharge current to the ground and interrupts the follow current. *See:* **surge arrester.** 74-1958w

arcing contacts (power switchgear). The contacts of a switching device on which the arc is drawn after the main (and intermediate, where used) contacts have parted. C37.100-1981

arcing horn (power switchgear). One of a pair of diverging electrodes on which an arc is extended to the point of extinction after the main contacts of the switching device have parted. *Syn:* **arcing runners.** C37.36b-1990, C37.100-1981

arcing runners. *See:* **arcing horn.** C37.100-1981

arcing time (1) (protection and coordination of industrial and commercial power systems). The arcing time of a fuse is the time elapsing from the melting of the current-responsive element (such as the link) to the final interruption of the circuit. This time will be dependent upon such factors as voltage and reactance of the circuit. 242-1986
(2) (power switchgear). (mechanical switching device). The interval of time between the instant of the first initiation of the arc and the instant of final arc extinction in all poles. *Note:* For switching devices that embody switching resistors, a distinction should be made between

complex data structure. *See:* **nonprimitive data structure.** 610.5-1990

complex dielectric constant (antennas). The complex permittivity of a physical medium in ratio to the permittivity of free space. *See:* **relative permeability in physical media; relative complex dielectric constant.** 145-1983

complexity (software). (A) The degree to which a system or component has a design or implementation that is difficult to understand and verify. *Contrast with:* **simplicity.** (B) Pertaining to any of a set of structure-based metrics that measure the attribute in (A). 610.12-1990 **(2) (magnetic core testing).** Under stated conditions, the complex quotient of vectors representing induction and field strength inside the core material. One of the vectors is made to vary sinusoidally and the other referenced to it. 393-1977

complex number. A number consisting of a real part (a) and an imaginary part (b), expressed in the form $a + bi$, where $i^2 = -1$.
610.1, 610.5-1990

complex permittivity (antennas). For isotropic media, the ratio of the complex amplitude of the electric displacement density to the complex amplitude of the electric field strength. *See:* **relative complex dielectric constant.** 145-1983

complex permittivity in physical media (antenna). For isotropic media the ratio of the electric flux density to the electric field, in which the displacement current density represents the total current density. *Note:* This term is used to describe both the conductive and dielectric properties of a medium. 145-1983

complex plane (automatic control). A plane defined by two perpendicular reference axes, used for plotting a complex variable or functions of this variable, such as a transfer function. [3]

complex polarization ratio (antennas). For a given field vector at a point in space, the ratio of the complex amplitudes of two specified orthogonally polarized field vectors into which the given field vector has been resolved. *Note:* For these amplitudes to define definite phase angles particular unitary vectors (basis vectors) must be chosen for each of the orthogonal polarizations. *See:* **plane wave, Note 2; polarization vector, Note 1.** 145-1983

complex power (rotating machinery). *See:* **power, phasor; phasor power.**

complex target (radar). A target composed of more than one scatterer within a single radar resolution cell. Note the distinction between this term and "distributed target." A target may be both complex and distributed. *See:* **distributed target.** 686-1982

complex tone. (A) A sound containing simple sinusoidal components of different frequen-

cies. (B) A sound sensation characterized by more than one pitch. [32]

complex variable (automatic control). A convenient mathematical concept having a complex value, that is having a real part and an imaginary part. *Note:* In control systems, the pertinent independent variable is a generalized frequency $s = \sigma + j\omega$ used in the Laplace transform. [3]

complex waveforms (pulse terms). *See:* **combinations of pulses and transistions; waveforms produced by magnitude superposition; waveforms produced by continuous time superposition of simpler waveforms; waveforms produced by noncontinuous time superposition of simpler waveforms; waveforms produced by operations on waveforms.**

compliance (industrial control). A property reciprocal to stiffness. *See:* **control system, feedback.** [60]

compliance extension (power supply). A form of master/slave interconnection of two or more current-regulated power supplies to increase their compliance voltage range through series connection. *See:* **power supply; compliance voltage.** [41]

compliance voltage (power supplies). The output voltage of a direct-current power supply operating in constant-current mode. *Note:* The compliance range is the range of voltages needed to sustain a given value of constant current throughout a range of load resistances. *See:* **power supply.** [41]

component (1) (reliability data for pumps and drivers, valve actuators, and valves). The largest entity of hardware for which data are most generally collected and expected to be reliable (for example, pump with motor, valve with operator, amplifier, pressure transmitter). It is generally an off-the-shelf item procured by the system designer as a basic building block for his system. It should be distinguished from seals, materials, nuts, bolts, and other piece parts from which the component is made.
500-1984
(2) (reliable industrial and commercial power systems planning and design). A piece of equipment, a line or circuit, or a section of a line or circuit, or a group of items which is viewed as an entity for purposes of reliability evaluation. 493-1980
(3) (seismic design of substations). The devices and equipment which are assembled at the erection site, or readily removed or accessed for maintenance, and which perform a function (for example, power circuit breakers, disconnect switches, relays, sensors).
693-1984
(4) (unique identification in power plants). A part or assembly of parts that is viewed as an entity for purposes of design, operation, and

reporting. 803-1983
(5) (unique identification in power plants and related facilities). A part or assembly of parts considered an entity for purpose of design, operation, and reporting. 804-1983
(6) (software). One of the parts that make up a system. A component may be hardware or software and may be subdivided into other components. *Note:* The terms "module," "component," and "unit" are often used interchangeably or defined to be subelements of one another in different ways depending upon the context. The relationship of these terms is not yet standardized. 610.12-1990
(7) (electric utility power systems). A part within or associated with a transformer that is viewed as an entity. This is usually a replaceable part; for example, main winding, tap changer motor, etc. C57.117-1986
(8) (electrical transmission facilities). A device that performs a major operating function and that is regarded as an entity for purposes of recording and analyzing data on outage occurrences. *Notes:* (1) Some examples of components are line sections, transformers, ac/dc converters, series capacitors or reactors, shunt capacitors or reactors, circuit breakers, line protection systems, and bus sections. (2) Sometimes it is necessary to subdivide a line section into segments to allow proper calculation of failure rates and exposure data. For example, if a line section is composed of an overhead line segment and an underground line segment, failure and exposure data for each line segment may be recorded separately. 859-1987

component assembly (1) (unique identification in power plants). An assembly of components, physically contiguous, which is viewed as a single entity for purposes of procurement, for example, boric-acid control panel. 803-1983
(2) (unique identification in power plants and related facilities). An assembly of contiguous components, considered as a single entity for purpose of procurement, that is, boric acid control panel. 804-1983

component data element. A component of a data structure. *Syn:* **component element; element.** 610.5-1990

component element. *See:* **component data element.** 610.5-1990

component function (1) (unique identification in power plants). The action performed by a component within a system. 803-1983
(2) (unique identification in power plants and related facilities). The primary function performed by a component (element) within a system. 804-1983

component function identifier (unique identification in power plants and related facilities). A one to four character alpha-numeric code that identifies the function the component performs within the system. 804-1983

component hazard (reliability data). The instantaneous failure rate of a component or its conditional probability of failure versus time. 500-1977

components (1) (nuclear power generating station). Items from which the equipment is assembled, for example, resistors, capacitors, wires, connectors, transistors, tubes, switches, springs, etc. 323-1974
(2) (safety systems equipment in nuclear power generating stations). Items from which equipment is assembled (for example, attachments, bearings, bolts, capacitors, connectors, governors, inspection access ports, instrument sensors, locking devices, position indicators, resistors, seals, sight glasses, springs, switches, transistors, tubes, wires, etc. *Note:* Certain items, for example, instrument sensors, may satisfy the definition of the term component or the term equipment as used in IEEE Std 627-1980. Where such items are included within defined boundaries of equipment items, they are correctly referred to as components. Where such items are installed outside of defined boundaries for equipment items and perform independent functions, they are correctly referred to as equipment. 627-1980
(3) (switchgear assemblies for Class 1E applications in nuclear power generating stations). Items from which the switchgear assemblies are made (for example, power circuit breakers, instrument transformers, protective relays, control switches, primary insulation, etc.). C37.82-1971
(4) (accident monitoring instrumentation). Discrete items from which a system is assembled. 497-1981
(5) (nuclear power generating station). Discrete items from which a system is assembled. *Note:* Examples of components are: wires, transistors, switches, motors, relays, solenoids, pipes, fittings, pumps, tanks, or valves. 323-1974
(6) (nuclear power generating station). Items from which the system is assembled (for example, resistors, capacitors, wires, connectors, transistors, tubes, switches, springs, etc.). 650-1979
(7) (nuclear power generating stations). Items from which equipment is assembled. (For example, as used in this document, a component is a resistor, capacitor, wire, connector, spring, terminal block, bus support, etc.) 649-1980
(8) (nuclear power plants). Discrete items from which a system is assembled. *Note:* Examples of components are: wires, transistors, switches, motors, relays, solenoids, pipes, fittings, pumps, tanks, or valves. 603-1991
(9) (electric pipe heating systems). Items from which a system is assembled; for example, resistors, capacitors, wires, connectors, tubes, switches, etc. 622A-1984
(10) (electric heat tracing systems). Items

from which a system is assembled; for example, resistors, capacitors, wires, connectors, transistors, switches, etc.   622B-1988

component standard (software). A standard that describes the characteristics of data or program components.   610.12-1990

component testing (1) (software verification and validation plans). Testing conducted to verify the implementation of the design for one software element (for example, unit, module) or a collection of software elements.   1012-1986 **(2) (software).** Testing of individual hardware or software components or groups of related components. *Syn:* **module testing.** *See also:* **integration testing; interface testing; system testing; unit testing.**   610.12-1990

composite bushing (outdoor apparatus bushing). A bushing in which the major insulation consists of several coaxial layers of different insulation materials.   21-1976

composite cable (communication practice). A cable in which conductors of different gauges or types are combined under one sheath. *Note:* Differences in length of twist are not considered here as constituting different types. *See:* **cable.**   [119]

composite color picture signal (National Television System Committee (NTSC) color television). The electric signal that represents complete color picture information and all sync signals.   201-1979w

composite color signal (color television). The color-picture signal plus blanking and all synchronizing signals.   201-1979w

composite color sync (National Television System Committee (NTSC) color television). The signal comprising all the sync signals necessary for proper operations of a color receiver. *Note:* This includes the deflection sync signals to which the color sync signal is added in the proper time relationship.   201-1979w

composite conductor. A composite conductor consists of two or more strands consisting of two or more materials. *See:* **conductor.**   [10]

composite controlling voltage (electron tube). The voltage of the anode of an equivalent diode combining the effects of all individual electrode voltages in establishing the space-charge-limited currents. *See:* **excitation (drive).**   161-1971w, [45]

composite data element. A data element that contains two or more data elements that can be referred to either collectively or individually; for example, a data element named "date of birth" containing data elements "year," "month," and "day." *See also:* **data aggregate.** *Syn:* **data chain; molecular data element.** *Contrast with:* **atomic data element.**   610.5-1990

composited circuit. A circuit that can be used simultaneously for telephony and direct-current telegraphy or signaling, separation between the two being accomplished by frequency discrimination. *See:* **transmission line.**   [119]

composite error (gyro; accelerometer). The maximum deviation of the output data from a specified output function. Composite error is due to the composite effects of hysteresis, resolution, non-linearity, non-repeatability, and other uncertainties in the output data. It is generally expressed as a percentage of half the output span. *See:* **input-output characteristics.**   528-1984w

composite level (measuring the performance of tone address signaling systems). In two-tone signaling systems, the total power of the two tones comprising a specific signal present condition.   752-1986

composite picture signal (television). The signal that results from combining a blanked picture signal with the asynchronizing signal. *See:* **television.**   [34]

composite plate (electroplating). An electrodeposit consisting of two or more layers of metals deposited separately. *See:* **electroplating.** [119]

composite pulse (pulse navigational systems) (navigation aid terms). A pulse composed of a series of overlapping pulses received from the same signal source but by way of different paths.   172-1983

composite set. An assembly of apparatus designed to provide one end of a composited circuit.   [119]

composite signaling (CX) (telephone switching systems). A form of polar-duplex signaling capable of simultaneously serving a number of circuits using low-pass filters to separate the signaling currents from the voice currents.   312-1977w

composite supervision. The use of a composite signaling channel for transmitting supervisory signals between two points in a connection.   [119]

composite triple beat (CTB) distortion. The combination of all possible third-order beat frequencies ($F_1 \pm F_2 \pm F_3$) that occurs within a channel of the cable plant. *See:* **intermodulation distortion.**   802.7-1989

composite type. A data type each of whose members is composed of multiple data items. For example, a data type called PAIRS whose members are ordered pairs (x,y). *Contrast with:* **atomic type.**   610.12-1990

composite video signal. The complete video signal. For monochrome systems, it comprises the picture, blanking, and synchronizing signals. For color systems it includes

dyadic (mathematics of computing). Pertaining to an operation involving two operands. *Contrast with:* **monadic.**   610.1

dyadic Boolean operation. A logical operation involving two operands. For example, the equivalence operation. *Contrast with:* **monadic Boolean operation.**   610.1

dyadic operation. An operation involving two operands. *Contrast with:* **monadic operation.**   610.1

dyadic operator. An operator that specifies an operation on two operands. *Syn:* **binary operator.** *Contrast with:* **monadic operator.**   610.1

dyadic selective construct. An if-then-else construct in which processing is specified for both outcomes of the branch. *Contrast with:* **monadic selective construct.**   610.12-1990

dynamic (industrial control) (excitation control systems). A state in which one or more quanitities exhibit appreciable change within an arbitrarily short time interval. *Note:* For excitation control systems, this time interval encompasses up to 15-20 sec.; that is, sufficient time to ascertain whether oscillations are decaying or building up with time. *See:* **control system, feedback.**   421A-1978
(2) (software). Pertaining to an event or process that occurs during computer program execution; for example, dynamic analysis, dynamic binding. *Contrast with:* **static.**
                 610.12-1990

dynamic accuracy (1). Accuracy determined with a time-varying output. Contrast with static accuracy. *See:* **electronic analog computer.**   185-1975w
(2) (analog computers). Accuracy determined with a time-varying output.   165-1977

dynamic allocation (software). *See:* **dynamic resource allocation.**   610.12-1990

dynamically tuned gyro (DTG) (inertial sensor). A two-degree-of-freedom gyro in which a dynamically tuned flexure and gimbal mechanism both supports the rotor and provides angular freedom about axes perpendicular to the spin axis. *See:* **dynamic tuning.**
                 528-1984w

dynamic analysis (software). The process of evaluating a system or component based on its behavior during execution. *Contrast with:* **static analysis.** *See also:* **demonstration; testing.**   610.12-1990

dynamic analyzer (software). A software tool that aids in the evaluation of a computer program by monitoring execution of the program. Examples include instrumentation tools, software monitors, and tracers. *See:* **computer program; execution; instrumentation tools; program; software monitor; software tool; static analyzer; tracer.**   729-1983

dynamic binding (software). Binding performed during the execution of a computer program. *Contrast with:* **static binding.**   610.12-1990

dynamic braking (rotating machinery). A system of electric braking in which the excited machine is disconnected from the supply system and connected as a generator, the energy being dissipated in the winding and, if necessary, in a separate resistor.   [9]

dynamic braking envelope. A curve that defines the dynamic braking limits in terms of speed and tractive force as restricted by such factors asmaximum current flow, maximum permissible voltage, minimum field strength, etcetera. *See:* **dynamic braking.**   [119]

dynamic breakpoint. A breakpoint whose predefined initiation event is a runtime characteristic of the program, such as the execution of any twenty source statements. *Contrast with:* **static breakpoint.** *See also:* **code breakpoint; data breakpoint; epilog breakpoint; programmable breakpoint; prolog breakpoint.**
                 610.12-1990

dynamic buffering. A buffering technique in which the buffer allocated to a computer program varies during program execution, based on current need. *Contrast with:* **simple buffering.**   610.12-1990

dynamic bus sizing. The ability of some microprocessors to adjust the number and the size of data transfers to the amount of data that the responding board can access in one transfer. During the address broadcast portion of the cycle, the slave informs the master how many data lines it actually drives or receives. This information is made available to on-board logic that can then adjust the amount of data that it accesses during the data transfer to the capabilities of the slave.   1096-1988

dynamic characteristic (electron tube) (operating characteristic). *See:* **load (dynamic) characteristic (electron tube).**

dynamic check. *See:* **problem check.** 165-1977

dynamic computer check. *See:* **problem check.**

dynamic cutoff frequency (semiconductor) (nonlinear, active, and nonreciprocal waveguide components). A figure of merit used for varactor diodes. Unlike fixed cutoff frequency measurements at specific bias voltages, dynamic cutoff frequency is a measure of the varactor's total change in Q from a slight forward bias current to reverse breakdown voltage. This dynamic or total figure of merit is useful in evaluating the frequency multiplier performance of fully driven multipliers.   457-1982

dynamic dump (computing systems). A dump that is performed during the execution of a program.   [20], [85]

dynamic dump. A dump that is produced during the execution of a computer program. *Contrast with:* **static dump.** *See also:* **change dump; memory dump; postmortem dump; selective dump; snapshot dump.**   610.12-1990

dynamic dumping (test, measurement and diagnostic equipment). The printing of diagnostic information without stopping the program being tested.   [2]

dynamic electrode potential. An electrode potential when current is passing between the electrode and the electrolyte. *See:* **electrochemistry.**   [119]

dynamic energy sensitivity (photoelectric devices). *See:* **sensitivity dynamic.**

dynamic error (1) (analog computers). An error in a time-varying signal resulting from imperfect dynamic response of a transducer.   165-1977
(2) (software). An error that is dependent on the time-varying nature of an input. *Contrast with:* **static error.**   610.12-1990

dynamic holding brake. A braking system designed for the purpose of exerting maximum braking force at a fixed speed only and used primarily to assist in maintaining this fixed speed when a train is descending a grade, but not to effect a deceleration. *See:* **dynamic braking.**   [119]

dynamic impedance (low voltage varistor surge arresters). A measure of small signal impedance at a given operating point, described as the rate of change of varistor voltage with respect to varistor current at the operating point.   [8]

dynamic load line (electron device). The locus of all simultaneous values of total instantaneous output electrode current and voltage for a fixed value of load impedance.   [45]

dynamic loudspeaker. *See:* **moving-coil speaker.**

dynamic microphone. *See:* **moving-coil microphone.**

dynamic model. A model of a system in which there is change, such as the occurrence of events over time or the movement of objects through space; for example, a model of a bridge that is subjected to a moving load to determine characteristics of the bridge under changing stress. *Contrast with:* **static model.**   610.3-1989

dynamic problem check. *See:* **problem check.**   165-1977

dynamic programming. In operations research, a procedure for optimizing a multi-stage problem solution, in which a number of decisions are available at each stage of the process.   610.2-1987

dynamic radiation test (metal-nitride-oxide field-effect transistor). Test of the instantaneous effects of radiation obtained by monitoring electrical properties of interest continuously during and immediately after exposure.   581-1978w

dynamic radiation test. A test of the instantaneous effects of radiation electrical and memory properties of interest continuously, during and immediately after exposure to a transient radiation pulse.   641-1988

dynamic range (1) (parametric amplifier) (nonlinear, active, and nonreciprocal waveguide components). The ratio, usually expressed in decibels, of the maximum to the minimum signal input power levels over which the amplifier can operate within some specified range of performance. The minimum level is usually determined by the noise level of the amplifier, while the maximum level is usually set by the maximum tolerable nonlinear effects.   457-1982
(2) (general). The difference, in decibels, between the overload level and the minimum acceptable signal level in a system or transducer. *Note:* The minimum acceptable signal level of a system or transducer is ordinarily fixed by one or more of the following: noise level, low-level distortion, interference, or resolution level. *See:* **electronic analog computer; signal.**   165-1977
(3) (control system or element). The ratio of two instantaneous signal magnitudes, one being the maximum value consistent with specified criteria of performance, the other the maximum value of noise.   [3]
(4) (gyro; accelerometer). The ratio of the input range to the threshold. *See:* **input-output characteristics.**   528-1984w
(5) (spectrum analyzer). The maximum ratio of two signals simultaneously present at the input which can be measured to a specified accuracy. (A) harmonic dynamic range. The maximum ratio of two harmonically related sinusoidal signals simultaneously present at the input which can be measured with a specified accuracy. (B) nonharmonic dynamic range. The maximum ratio of two nonharmonically related sinusoidal signals simultaneously present at the input which can be measured with a specified accuracy. (C) display dynamic range. The maximum ratio of two nonharmonically related sinusoids each of which can be simultaneously measured on the screen to a specified accuracy.   748-1979w
(6) (analog computers). The ratio of the specified maximum signal level capability of a system or component to its noise or resolution level, usually expressed in decibels. Also, the ratio of the maximum to minimum amplitudes of a variable during a computer solution.   165-1977

dynamic range, reading (storage tubes). The range of output levels that can be read, from

saturation level to the level of the minimum discernible output signal. *See:* **storage tube.**
158-1962w

dynamic range, writing (storage tubes). The range of input levels that can be written under any stated condition of scanning, from the input that will write the minimum usable signal. *See:* **storage tube.**   ' 158-1962w

dynamic register (hybrid computer linkage components). The register that produces the analog equivalent voltage or coefficient.
166-1977

dynamic regulation. Expresses the maximum or minimum output variations occurring during transient conditons, as a percentage of the final value. *Note:* Typical transient conditions are instantaneous or permanent input or load changes.   [32]

dynamic regulation $= \dfrac{E_{max} - E_{final}}{E_{final}} (100\%)$

dynamic regulator. A transmission regulator in which the adjusting mechanism is in self-equilibrium at only one or a few settings and requires control power to maintain it at any other setting.   [119]

dynamic relocation. Relocation of a computer program during its execution.   610.12-1990

dynamic resource allocation. A computer resource allocation technique in which the resources assigned to a program vary during program execution, based on current need.
610.12-1990

dynamic response. *See:* **time response; control system, feedback.**

dynamic restructuring (data management) (software). The process of restructuring a database, data structure, computer program, or set of system components during program execution. For example, concurrent reorganization of a database. 610.5-1990, 610.12-1990

dynamic short-circuit output current (converters having ac output) (self-commutated converters). The transient current that flows from the converter into a short-circuit across the output terminals.   936-1987

dynamic signal to noise ratio (digital delay line). The ratio of the minimum peak output signal to the maximum peak noise output when operated with a random bit sequence at a specified clock frequency.   [22]

dynamic slowdown (industrial control). Dynamic braking applied for slowing down, rather than stopping, a drive. *See:* **electric drive.**   [60]

dynamic storage allocation. A storage allocation technique in which the storage assigned to a computer program varies during program execution, based on the current needs of the

program and of other executing programs.
610.12-1990

dynamic test (test, measurement, and diagnostic equipment). A test of one or more of the signal properties or characteristics of the equipment or of any of its constituent items performed while the equipment is energized.[2]

dynamic time constant (dynamically tuned gyro) (inertial sensor). The time required for the rotor to move through an angle equal to 63 percent of its final value following a step change in case angular position about an axis normal to the spin axis with the gyro operating open loop. The value depends on the gimbal and rotor damping and drag forces, and is inversely proportional to quadrature spring rate.   528-1984w

dynamic torque (electric coupling). That torque of an electric coupling developed or transmitted at a specified value or range of speed differential between input and output members and at specified excitation and other applicable conditions.   290-1980w

dynamic transmission (acoustically tunable optical filter). The ratio of the intensity of the light transmitted by the device at the wavelength to be filtered to the light intensity at this this wavelength incident on the device, namely: $T(\lambda) = [I(\lambda) / I_0(\lambda)]$. It includes all static losses as well as the diffraction efficiency of the interaction. For a given design, the dynamic transmission is a function of acoustic drive power.   [17]

dynamic tuning (dynamically tuned gyro) (inertial sensor). The adjustment of the gimbal inertia or flexure spring rate, or both, of a rotor suspension system or the adjustment of the rotor speed to achieve a condition where the dynamically induced (negative) spring rate cancels the spring rate of the flexure suspension.   528-1984w

dynamic variable brake. A dynamic braking system designed to allow the operator to select (within the limits of the electric equipment) the braking force best suited to the operation of a train descending a grade and to increase or decrease this braking force for the purpose of reducing or increasing train speed. *See:* **dynamic braking.**   [119]

dynamic vertical. *See:* **apparent vertical.**

dynamometer (conductor stringing equipment) (power line maintenance). A device designed to measure loads or tension on conductors. Various models of these devices are used to tension guys or sag conductors. *Syn:* **clock; load cell.**   516-1987, 524-1980

dynamometer, electric (rotating machinery). An electric generator, motor or eddy-current load absorber equipped with means for indicating torque. *Note:* When used for determining power input or output of a coupled machine,

line stretcher (waveguide components). A section of waveguide or transmission line having an adjustable physical length. 147-1979

line style. *See:* line type. 610.6-1991

line switch (power system device function numbers). A switch used as a disconnecting, load-interrupter, or isolating switch in an ac or dc power circuit, when this device is electrically operated or has electrical accessories, such as an auxiliary switch, magnetic lock, etc. C37.2-1979

line switching (data transmission). The switching technique of temporarily connecting two lines together so that the stations directly exchange information. 599-1985w

line tap (in respect to system protection) (power switchgear). A connection to a line with equipment that does not feed energy into a fault on the line in sufficient magnitude to require consideration in the relay plan. C37.100-1981

line terminal (1) (metal-oxide surge arresters for ac power circuits). The conducting part provided for connecting the arrester to the circuit conductor. C62.11-1987
(2) (in respect to system protection) (power switchgear). A connection to a line with equipment that can feed energy into a fault on the line in sufficient magnitude to require consideration in the relay plan and that has means for automatic disconnection. C37.100-1981
(3) (surge arrester). The conducting part provided for connecting the arrester to the circuit conductor. *Note:* When a line terminal is not supplied as an integral part of the arrester, and the series gap is obtained by providing a specified air clearance between the line end of the arrester and a conductor, or arcing electrode, etc., the words line terminal used in the definition refer to the conducting part that is at line potential and that is used as the line electrode of the series gap. C62.1-1981
(4) (rotating machinery). A termination of the primary winding for connection to a line (not neutral or ground) of the power supply or load. *See:* asynchronous machine; rotor (rotating machine); stator. [9]

line-time waveform distortion (LD) (linear waveform distortion). The linear TV waveform distortion of time components from 1 microsecond to 64 microseconds, that is, time components of the line-time domain. 511-1979

line-to-background ratio (of a spectral line) (x-ray energy spectrometers). The ratio of the intensity of a monoenergetic line to the intensity of the background immediately adjacent to the line. 759-1984

line-to-line voltage. *See:* voltage sets.

line-to-neutral voltage. *See:* voltage sets.

line transducer. A directional transducer consisting of a single straight-line element, or an array of contiguous or spaced electroacoustic transducing elements disposed on a straight line, or the acoustical equivalent of such an array. *See:* line microphone. [32]

line transformer. A transformer for interconnecting a transmission line and terminal equipment for such purposes as isolation, line balance, impedance matching, or for additional circuit connections. 151-1965w

line trap. *See:* carrier-current line trap.

line trigger (spectrum analyzer). Triggering from the power line frequency. 748-1979w

line triggering. Triggering from the power line frequency. *See:* oscillograph. [14], [40]

line type. An attribute specifying the manner in which a line is displayed on a graphical display device. For example: solid, dashed, dotted, dot-dash. *Syn:* line style. 610.6-1991

line-type fire detector (fire protection devices). A device in which detection is continuous along a path. [16]

line voltage (thyristor). The voltage between the lines of the supplying power system. 428-1981

line voltage notch (harmonic control and reactive compensation of static power converters). The dip in the supply voltage to a converter due to the momentary short circuit of the ac lines during a commutation interval. Alternatively, the momentary dip in supply voltage caused by the reactive drops in the supply circuit during the high rates of change in currents occurring in the ac lines during commutation. 519-1981

line weighting (data transmission). A noise weighting used in a noise measuring set to measure noise on a line that is terminated by a subset with a number 144 receiver or a similar subset. The meter-scale readings are in dBrn (144 line). *See:* noise definitions. 599-1985w

line width (computer graphics). An attribute specifying the thickness of a line displayed on a graphical display device. *Syn:* line density. 610.6-1991

linewidth (1) (laser-maser). The interval in frequency or wavelength units between the points at which the absorbed power (or emitted power) of an absorption (or emission) line is half of its maximum value when measured under specified conditions. 586-1980w
(2) (fiber optics). *See:* spectral width. 812-1984

line-work (power line maintenance). Various operations performed by a person on electrical facilities, including ground work, aerial work, and associated maintenance. 516-1987

link (1) (protection and coordination of industrial and commercial power systems).

The current-responsive element in a fuse that is designed to melt under overcurrent conditions and so interrupt the circuit. A renewal link is one intended for use in Class H low-voltage renewable fuses.   242-1986
(2) (data transmission). A channel or circuit designed to be connected in tandem with other channels or circuits. In automatic switching, a link is a path between two units of switching apparatus within a central office.   599-1985w
(3) (communication satellite). A complete facility over which a certain type of information is transmitted, including all elements from source transducer to output transducer.   [24]
(4) (telephone switching systems). A connection between switching stages within the same switching system.   312-1977w
(5) (data management). (A) *See:* **pointer.** (B) To establish a pointer; for example, to link two items in a hierarchy. (C) In relation theory, a relationship between two or more entities or records. (D) To append an item to a linked list. *See also:* **link field; push.**   610.5-1990
(6) (software). (A) To create a load module from two or more independently translated object modules or load modules by resolving cross-references among them. *See also:* **linkage editor.** (B) A part of a computer program, often a single instruction or address, that passes control and parameters between separate modules of the program. *Syn:* **linkage.** (C) To provide a link as in (B).   610.12-1990
(7) (token ring access method and physical layer specifications). A unidirectional physical and media connection between two stations.   802.5c-1991

linkage (1) (programming) (computing systems). Coding that connects two separately coded routines.   [85]
(2) (software). *See:* **link (F).**   610.12-1990

linkage editor (software). A computer program that creates a single load module from two or more independently translated object modules or load modules by resolving cross-references among the modules and, possibly, by relocating elements. May be part of a loader. *Syn:* **linker.** *See also:* **linking loader.**
            610.12-1990

linkage voltage test, direct-current test (rotating machinery). A series of current measurements, made at increasing direct voltages, applied at successive intervals, and maintained for designated periods of time. *Note:* This may be a controlled overvoltage test. *See:* **asynchronous machines.**   [9]

link-break cutout (power switchgear). A load-break fuse cutout that is operated by breaking the fuse link to interrupt the load current.
            C37.40-1981, C37.100-1981

linked linear list. A linear list in which each item contains a pointer to the next item in the list, making it unnecessary for the items to be physically sequential. *Note:* the items are still

logically adjacent. *Syn:* **linear linked list.**
            610.5-1990

linked list (1). A list in which each item contains a pointer to the next or preceding item in the list, making it unnecessary for the items to be physically sequential. *Note:* Unless the list is circular, the last item in the list contains a null link field. *Syn:* **chain; chained list; one-way chain; singly linked list.** *See also:* **circularly linked list; doubly linked list; linked linear list.**   610.5-1990
(2) (software). *See:* **chained list.**   729-1983

linker. *See:* **linkage editor.**   610.12-1990

link field. (A) A field in each item of a linked list, containing a pointer to the next or preceding item in the list. *Syn:* **chain field.** (B) In a tree, that portion of each node that contains a pointer to other nodes in the tree. 610.5-1990

linking loader. A computer program that reads one or more object modules into main memory in preparation for execution, creates a single load module by resolving cross-references among the separate modules, and, in some cases, adjusts the addresses to reflect the storage locations into which the code has been loaded. *See also:* **absolute loader; relocating loader; linkage editor.**   610.12-1990

link pair. A pair of links going in opposite directions between two stations.   802.5c-1991

link segment. The point-to-point full duplex medium connection between two and only two medium-dependent interfaces (MDIs).
            802.3i-1990

link, swivel (conductor stringing equipment). A swivel device designed to connect pulling lines and conductors together in series or connect one pulling line to the drawbar of a pulling vehicle. The device will spin and help relieve the torsional forces which build up in the line or conductor under tension. *Syn:* **swivel.**   524-1980

lin-log receiver (radar). A receiver having a linear amplitude response for small-amplitude signals and a logarithmic response for large-amplitude signals.   686-1982

lip microphone. A microphone adapted for use in contact with the lip. *See:* **microphone.** [119]

liquid controller (industrial control). An electric controller in which the resistor is a liquid. *See:* **electric controller.**   [60]

liquid cooling (rotating machinery). *See:* **manifold insulation.**

liquid counter tube (radiation counters). A counter tube suitable for the assay of liquid samples. It often consists of a thin glass-walled Geiger-Mueller tube sealed into a test tube providing an annular space for the sample. *See:* **anticoincidence (radiation counters).**
            [45]