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DICTIONARY

OF IEEE STANDARDS TERMS

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IEEE Standards Terms

Seventh Edition



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- ulated wave. *See also*: square-law detection; power detection; linear detection. (AP/ANT) 145-1983
- detection efficiency** The ratio between the number of selected pulses recorded per unit time to the number of photons emitted by the source per unit time. *See also*: total efficiency. (NI) N42.14-1991
- detection, error** *See*: error detection.
- detection limit (radioactivity monitoring instrumentation)** The extreme of quantification for the radiation of interest by the instrument as a whole or by an individual readout scale or decade. The lower detection limit is the minimum quantifiable instrument response or reading. The upper detection limit is the maximum quantifiable instrument response or reading. Quantifiable, in this case, means within the specified accuracy. (NI) N42.17B-1989r, N323-1978r
- detection probability** The probability that a signal, when actually present at the input to the receiver, will be correctly declared a target signal based on observation of the receiver output. *See also*: false-alarm probability. (AES) 686-1997
- detection zone** Any area equipped to sense the presence of an intruder. (PE/NP) 692-1997
- detectivity (fiber optics)** The reciprocal of noise equivalent power (NEP). *See also*: noise equivalent power. (Std100) 812-1984w
- detector (1) (monitoring radioactivity in effluents)** Any device for converting radiation flux to a signal suitable for observation and measurement. (NI) N42.18-1980r
- (2) **(electromagnetic energy)** A device for the indication of the presence of electromagnetic fields. *Note*: In combination with an instrument, a detector may be employed for the determination of the complex field amplitudes. *See also*: auxiliary device to an instrument. (IM/HFIM) [40]
- (3) **(overhead-power-line corona and radio noise)** A device that performs detection (extraction of signal or noise from a modulated input) and weighting (extraction of a particular characteristic of the signal or noise). *Note*: In a radio noise receiver, the voltage applied to the detector depends upon the nature of the noise and the bandwidth of the filters used in the intermediate frequency stages. To furnish calibrations that are independent of the bandwidth and can be made with readily available equipment, an unmodulated carrier is used. With such input, all detectors (peak, quasi-peak, average, or rms) will indicate the same value of radio noise. (T&D/PE) 539-1990
- (4) **(radiation protection)** A device or component which produces an electronically measurable quantity in response to ionizing radiation. (NI) N323-1978r
- (5) **(airborne radioactivity monitoring)** That portion of an instrument system sensitive to and used for the quantification of ionizing radiation. (NI) N42.17B-1989r
- detector, average** *See*: average detector.
- detector bias** The voltage applied to a detector to produce the electric field that sweeps out the signal charge. (NPS) 325-1996
- detector capacitance** The small-signal electrical capacitance measured between terminals of the detector under specified conditions of bias and frequency. (NPS) 325-1996
- detector, coaxial** *See*: coaxial detector.
- detector, diffused-junction** *See*: diffused-junction detector.
- detector element** The semiconductor crystal including its contacts. (NPS) 325-1996
- detector element geometry** The physical configuration of a detector element. *See also*: detector element. (NPS) 325-1996
- detector figure of merit (nonlinear, active, and nonreciprocal waveguide components)** A measure of the performance of a diode detector. It can be expressed quantitatively as the ratio of the open-circuit voltage sensitivity to the square root of the video resistance. (MTT) 457-1982w
- detector geometry (x-ray energy spectrometers) (detector diation detectors)** The physical configuration of a solid-state detector. (NPS/NID) 325-1971w, 300-1988r, 301-1976s, 759-1984r
- detector, germanium gamma-ray** *See*: germanium gamma-ray detector.
- detector, p-i-n** *See*: p-i-n detector.
- detector, Schottky-barrier** *See*: Schottky-barrier detector.
- detector, semiconductor radiation** *See*: semiconductor radiation detector.
- detector, surface barrier** *See*: surface barrier detector.
- detector, transmission** *See*: transmission detector; differential dE/dx detector.
- detector, well-type coaxial** *See*: well-type coaxial detector.
- determinant (1)** A square array of numbers or elements bordered on either side by a straight line. The value of the determinant is a function of its elements. (CAS) [13]
- (2) **(data management)** Within a relation, an attribute on which some other attribute is functionally dependent. (C) 610.5-1990w
- deterministic** Pertaining to a process, model, or variable whose outcome, result, or value does not depend on chance. *Contrast*: stochastic. (C) 610.3-1989w
- deterministic error** *See*: bias.
- deterministic model** A model in which the results are determined through known relationships among the states and events, and in which a given input will always produce the same output; for example, a model depicting a known chemical reaction. *Contrast*: stochastic model. (C) 610.3-1989w
- deterministic routing** A network routing strategy where the choice of destination drives the decision at each node, regardless of changing conditions in the network. (C) 610.7-1995
- DETOL** *See*: Directly Executable Test Oriented Language.
- detuners** Devices attached to a structure which alter the impedance at the connection point such that a minimum of current at the design frequency (frequencies) flows in the structure. (T&D/PE) 1260-1996
- developed source statements** Source statements that are newly created for, added to, or modified for a software product. (C/SE) 1045-1992
- developer (1) (electrostatography)** A material or materials that may be used in development. (ED) 224-1965w, [45]
- (2) An organization that develops software products; "develops" may include new development, modification, reuse, re-engineering, maintenance, or any other activity that results in software products, and includes the testing, quality assurance, configuration management, and other activities applied to these products. *Synonym*: supplier. (C/SE) J-STD-016-1995, 1362-1998
- (3) A person or organization that performs development activities (including requirements analysis, design, testing through acceptance) during the software life cycle process. (C/SE) 1062-1998
- developer role** Where software is developed, tested, and maintained. (C/PA) 1387.2-1995
- development (1) (electrostatography)** The act of rendering an electrostatic image viewable. *See also*: electrostatography. (ED) [46]
- (2) All activities that are carried out to create a software product. (C/SE) 1298-1992w
- developmental baseline*** *See*: developmental configuration.
- * Deprecated.
- developmental configuration** In configuration management, the software and associated technical documentation that define the evolving configuration of a computer software configuration item during development. *Note*: The developmental configuration is under the developer's control, and therefore is not called a baseline. *Contrast*: allocated baseline; product

$$F(z, m) = \sum_{n=0}^{\infty} f[nT - (1 - m)T]u[nT - (1 - m)T]z^{-n}$$

$$0 < m < 1$$

(IM) [52]

modify (A) To change the contents of a database. **(B)** To change the logical structure of a database. *See also:* alter.

(C) 610.5-1990

Modula 2 *See:* MODular LAnguage II.

MODULA II *See:* MODular LAnguage II.

modular (software) Composed of discrete parts. *See also:* modular decomposition; modular programming.

(C) 610.12-1990

modular assembly A circuit breaker element consisting of sealed interrupters, mechanism, and connecting terminals.

(SWG/PE) C37.59-1996

modular constraint *See:* grid constraint.

modular decomposition (software) The process of breaking a system into components to facilitate design and development; an element of modular programming. *Synonym:* modularization. *See also:* factoring; hierarchical decomposition; demodularization; cohesion; coupling; packaging; functional decomposition.

(C) 610.12-1990

modularity (software) The degree to which a system or computer program is composed of discrete components such that a change to one component has minimal impact on other components. *See also:* cohesion; coupling.

(C) 610.12-1990

modularization *See:* modular decomposition.

MODular LAnguage II (MODULA II) A programming language developed, as an expanded version of Pascal, to support modular design, structured programs, and mathematical calculations. *See also:* block-structured language.

(C) 610.13-1993w

modular programming (software) A software development technique in which software is developed as a collection of modules. *See also:* stepwise refinement; data structure-centered design; transaction analysis; rapid prototyping; modular decomposition; input-process-output; structured design; transform analysis; object-oriented design.

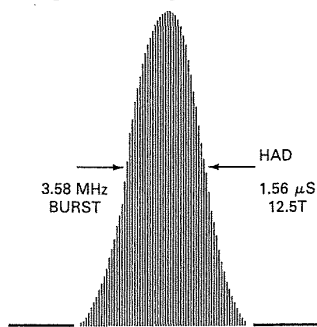
(C) 610.12-1990

MODULAR II *See:* MODular LAnguage II.

modulate (A) To convert voice or data signal for transmission over a communications network. *Contrast:* demodulate. **(B)** To vary one or more attributes of a carrier (amplitude, frequency, phase) such that the frequency information in the modulating signal can be recovered by its inverse process.

(C) 610.7-1995

modulated 12.5T pulse (linear waveform distortion) A burst of color subcarrier frequency of nominally 3.58 MHz. The envelope of the burst is \sin^2 shaped with a HAD of nominally 1.56 μs . The MOD 12.5T pulse consists of a luminance and a chrominance component. The envelope of the frequency spectrum consists of two parts, namely signal energy concentrated in the luminance region below 0.6 MHz and in the chrominance region from roughly 3 MHz to 4.2 MHz.



Envelope of frequency spectrum of modulated 12.5T pulse

modulated 12.5T pulse

(ED) 511-1978w

modulation (1) (A) (data transmission) (Carrier). (i) The process by which some characteristic of a carrier is varied in accordance with a modulating wave. (ii) The variation of some characteristic of a carrier. *See also:* angle modulation; modulation index. **(B) (data transmission) (Signal transmission system).** (i) A process whereby certain characteristics of a wave, often called the carrier, are varied or selected in accordance with a modulating function. (ii) The result of such a process. *See also:* angle modulation; modulation index.

(PE) 599-1985

(2) (diode-type camera tube) The ratio of the difference between the maximum and minimum signal currents divided by the sum. To avoid ambiguity, the optical input image intensity shall be assumed to be sinusoidal in the direction of scan.

(ED) 503-1978w

(3) (fiber optics) A controlled variation with time of any property of a wave for the purpose of transferring information.

(Std100) 812-1984w

(4) (overhead-power-line corona and radio noise) The process by which some characteristic of a carrier is varied in accordance with a modulating signal.

(T&D/PE) 539-1990

(5) (broadband local area networks) The method whereby information is superimposed onto a RF carrier to transport signals through a communications channel.

(LM/C) 802.7-1989r

(6) The process of changing or regulating the characteristics of a carrier that is vibrating at a certain amplitude and frequency so that the variations represent meaningful information. *Contrast:* demodulation.

(C) 610.7-1995

modulation contrast (diode-type camera tube) The ratio of the difference between the peak and the minimum values of irradiance to the sum of the peak and the minimum value of irradiance of an image or specified portion of an image.

(ED) 503-1978w

modulation index (angle modulation with a sinusoidal modulating function) (data transmission) The ratio of the frequency deviation of the modulated wave to the frequency of the modulating function. *Note:* The modulation index is numerically equal to the phase deviation expressed in radians.

(PE) 599-1985w

modulation threshold (illuminating engineering) In the case of a square wave or sine wave grating, manipulation of luminance differences can be specified in terms of modulation and the threshold may be called the modulation threshold.

$$\text{modulation} = \frac{L_{\max} - L_{\min}}{L_{\max} + L_{\min}}$$

Periodic patterns that are not sine wave can be specified in terms of the modulation of the fundamental sine wave component. The number of periods or cycles per degree of visual angle represents the spatial frequency.

(EEC/IE) [126]

modulator A device that converts a signal into a modulated signal that is suitable for transmission.

(C) 610.7-1995

modulation transfer function (diode-type camera tube) $R_o(N)$, the modulus of the optical transfer function (OTF), is synonymous with the sine amplitude response. That is, the response of the imaging sensor to sinewave images. When the modulation transfer functions or MTFs of a linear sensor's components are known, the overall system MTF can be found by multiplying the individual component MTFs together.

(ED) 503-1978w

modulator-demodulator *See:* modem.

module (1) (cable penetration fire stop qualification test) An opening in a fire resistive barrier so located and spaced from adjacent modules (openings) that its respective cable penetration fire stop's performance will not affect the performance of cable penetration fire stops in any adjacent module. A module may take on any shape to permit the passage of cables from one or any number of raceways.

(ED) 581-1978w

(2) (A) (software) A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading, for example, the input to, or output from, an