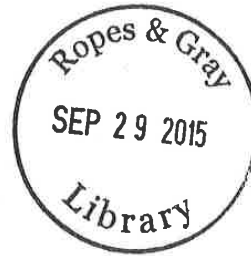


# WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY

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Steven M. Kaplan  
Lexicographer

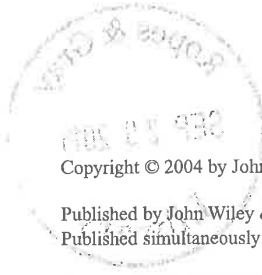


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- mark-to-space ratio** Same as **mark-space ratio**.
- marker** 1. Same as **mark** (1). 2. Same as **mark** (2). 3. That which serves to make a **mark** (1) or **mark** (2). 4. On the screen of an oscilloscope, a pip which serves to identify a reference frequency.
- marker beacon** 1. A beacon which radiates a specific pattern vertically, and which serves to provide positional information to aircraft. Used, for instance, in an instrument landing system. 2. A low-powered beacon which assists marine or aeronautical navigation.
- marker frequency** A frequency which serves to distinguish, indicate, or identify. For example, that which indicates the upper end of a frequency band.
- marker generator** 1. A radio-frequency generator, such as an oscillator, which generates **markers** (4). 2. A radio-frequency generator, such as an oscillator, which generates reference pulses, such as those of a specific frequency, duration, or amplitude.
- Markov model** A manner of representing the associations between data elements utilizing probability. Used extensively in voice recognition software.
- markup language** A language, such as HTML or XML, utilized for transforming unformatted text into structured documents by inserting hyperlinks, tags, and other display and formatting instructions.
- marquee** In computer graphics, a dotted line that frames a selected object, such as a picture. When the dots of said line move or flash, also called **marching ants**.
- Marx generator** A device which charges multiple capacitors in parallel, then discharges them in series, usually using spark gaps. Each discharge produces a high-voltage pulse.
- maser** Abbreviation of microwave amplification by stimulated emission of radiation. A device whose operation is similar to that of a laser, and which is utilized to amplify or generate coherent microwave radiation. Examples include gas and solid-state masers. Used, for instance, in communications, radio astronomy, radars, and as time and frequency standards.
- mask** 1. An object, stencil, or other device which is applied or placed upon a surface, so as to permit the selective passing of particles, beams, rays, substances, and so on, to form any desired patterns. 2. The use of a **mask** (1) to selectively shield portions of semiconductor wafers, or other materials, during manufacturing. Used, for instance, in lithography. 3. In a picture tube with a three-color gun, a grill with round holes that is placed behind the screen to make sure that each color beam strikes the correct phosphor dot on said screen. It insures, for instance, that the electron beam intended for the red phosphor dots only hits those. Also called **aperture mask**, or **shadow mask**. 4. To obscure a signal or sound with a stronger one. 5. A pattern of bits or characters which determines whether another set of bits or characters will be selected, transmitted, changed, or discarded. 6. A frame which serves to conceal the edges of a CRT.
- mask bit** A bit which determines if a corresponding bit will be selected, transmitted, changed, or discarded.
- maskable interrupt** An interrupt which can be disabled by another interrupt. Such an interrupt may occur, for instance, when there is a serious problem, or if given task or program needs the undivided attention of the CPU. A **non-maskable interrupt** is one which can not be disabled in this manner.
- masking** 1. The use of a **mask**. 2. The amount by which the threshold of hearing a sound is increased due to the presence of another, obscuring sound. The level of masking is usually expressed in decibels. Also called **masking effect** (1), **audio masking**, or **aural masking**. 3. The manner in which a signal, property, or phenomenon is obscured by another. Also, the extent to which this occurs. Also called **masking effect** (2).
- masking effect** 1. Same as **masking** (2). 2. Same as **masking** (3).
- masking sound** An obscuring sound whose presence raises the threshold of hearing of another, desired sound. The level of masking is usually expressed in decibels.
- masonite** A hard board made from pressed wood fibers. Used, for instance, as a panel upon which electrical components may be mounted.
- masquerade** To attempt to deceive and/or harm by appearing as someone or something else. For example, to send email with the *from* field using the name of another person or entity, or the manner in which a Trojan horse can appear to be a harmless program.
- mass** 1. The quantity of matter in a body or medium. The mass of a body makes it resist acceleration, and gives it gravitational attraction. Its SI unit is the kilogram, and its symbol is **m**. The **weight** (1) of an object varies depending on the gravitational force exerted upon it, while its mass does not. 2. A given body of matter. 3. A large or very large amount. 4. The principal part of something.
- mass absorption coefficient** For given material or medium, the linear absorption coefficient divided by the density of said material or medium.
- mass conservation** A law which states that mass, or matter, cannot be created nor destroyed in an isolated system. For instance, the mass remains constant when a substance changes form a solid to a gas in an isolated system. This law does not always hold true when dealing with subatomic particles. Also called **matter conservation**, **conservation of mass**, or **law of mass conservation**.
- mass-energy equation** A fundamental formula for the interconversion of mass and energy. It is  $E = mc^2$ , where  $E$  is energy,  $m$  is mass, and  $c$  is the speed of light in a vacuum. Also called **Einstein mass-energy relation**.
- mass memory** Same as **mass storage** (1).
- mass number** The number of protons and neutrons in the nucleus of an atom. For example, the mass number of the most common isotope of carbon is 12, as it has 6 protons and 6 neutrons. Its symbol is  $A$ . Also called **nucleon number**.
- mass spectrograph** A mass spectrometer in which the detector is a photographic plate. Also called **mass spectroscopy** (2).
- mass spectrometer** An instrument which identifies ions based on their charge-to-mass ratio. In it, the sample to be analyzed is vaporized, placed in a vacuum, ionized by an electron beam, accelerated by an electric field, then deflected into a curved path by a magnetic field. The amount of deflection of any given ion will depend on its charge-to-mass ratio, so each different species is separated according to its mass. A detector records the distribution of each of the masses, each producing its characteristic peaks. Widely utilized to analyze elements and compounds. Also called **mass spectroscopy** (1). Its abbreviation is **MS**.
- mass spectrometry** The use of a mass spectrometer for analysis. Its abbreviation is **MS**.
- mass spectroscopy** 1. Same as **mass spectrometer**. 2. Same as **mass spectrograph**.
- mass spectroscopy** The use of a mass spectrometer to obtain atomic and molecular spectrums. Its abbreviation is **MS**.
- mass spectrum** The display, plot, or other visual output produced when utilizing **mass spectrometry**.
- mass storage** 1. An external storage medium, such as a disc or tape, which holds a large amount of data, especially when compared to that which can be placed in the computer's