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diffusion under field (DUF) a local thin layer of semiconductor with a very high carrier concentration located under and in contact with the collector of a vertical bipolar transistor to provide a low-resistivity connection to it.

diffusive scattering when the photon mean free path is much smaller than the scatterer dimensions and then the energy is scattered uniformly in all directions.

DigiCipher HDTV system a high-definition television (HDTV) digital transmission television system proposed to the FCC by the American Television Alliance composed of General Instruments and Massachusetts Institute of Technology. The DigiCipher HDTV proposal submitted to the FCC in August of 1991 was the first system to provide an all digital television system that promised spectrum compatibility with the existing television channel allocation. The system used quadrature amplitude modulation (16-QAM) digital transmission at a 4.88 MHz symbol rate.

digital circuits or systems that employ two valued (binary) signals denoted by the digits 0 and 1. Normally binary 1 is used to indicate high/true and binary 0 to indicate low/false (Positive Logic).

digital cellular radio cellular radio product designed to transmit its signals digitally.

digital communications communication techniques that employ binary bits to encode information.

digital European cordless telephone (DECT) a digital microcell system operating in the 1.88–1.90 GHz band designed to provide high-capacity wireless voice and data services indoors and outdoors in small local networks. DECT systems use a TDMA/FDMA multiple access scheme, with 10 radio frequency carriers, each 1728 kHz wide, divided into 2×12 time slots. This provides a total

of 120 duplex traffic channels, with duplexing via TDD. The carrier bit rate is 1152 kb/s. DECT portable terminals have a peak transmit power of 250 mW.

digital filter the computational process or algorithm by which a sampled signal or sequence of numbers (acting as an input) is transformed into a second sequence of numbers termed the output signal. The computational process may be that of low-pass filtering (smoothing), bandpass filtering, highpass filtering, interpolation, the generation of derivatives, etc.

digital halftone halftone technique based on patterns of same size dots designed to simulate a shade of gray between white paper and full colorant coverage.

digital image (1) an array of numbers representing the spatial distribution of energy in a scene obtained by a process of sampling and quantization.

(2) a discrete-value function $\hat{I}(k, l) = I(k\Delta x, l\Delta y)$ obtained by sampling, at equispaced positions, the continuous function $I(x, y)$ which measures image intensity at position x, y of the image plane. I can be single-valued for monochrome images or m -valued (usually $m = 3$) for color images.

digital modulation signal generator an RF signal generator capable of providing signals with digital modulation formats such as Gaussian minimum shift keying (GMSK), $\pi/4$ differential quadrature phase shift keying (DQPSK), and code division multiple access (CDMA).

digital optical computing optical computing that deals with binary number operations, logic gates, and other efforts to eventually build a general-purpose digital optical computer. In digital optical computing, new optical devices are sought to replace elements in an electronic