

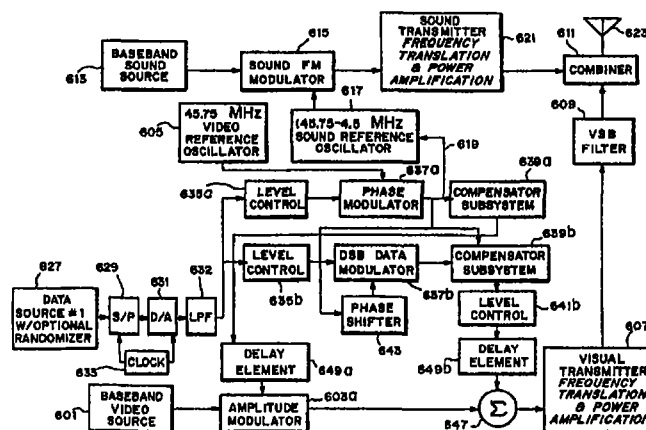
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(54) Title: EXPANDED INFORMATION CAPACITY FOR EXISTING COMMUNICATION TRANSMISSION SYSTEMS



(57) Abstract

A system for transmitting digital programming includes a program source providing digital information, circuitry for modulating the digital information onto a visual carrier modulated with analog television programming, and a visual transmitter coupled to the modulating circuitry. Using a phase modulation method, the system phase modulates the digital information onto a visual carrier, reduces the baseband frequencies of the phase modulated visual carrier, and amplitude modulates the phase-modulated video carrier onto a video signal. The amplified and encoded video signal are combined with an amplified sound signal and transmitted. Using an additive method, the system modulates the sidebands of the video carrier with the digital information and amplitude modulates the video signal onto the video carrier. The data-modulated sidebands are phase-shifted such that they will be in quadrature with the amplitude-modulated video signal. The system combines the amplitude-modulated video carrier and the data-modulated quadrature sidebands. With a blended multiplicative/additive method, the system provides phase modulation and quadrature sideband addition to provide an optimized result.