Abstracts

Optimal control of intermodulation distortion in hybrid fiber-coaxial CATV systems

G.D. Alley and Yen Long Kuo. "Optimal control of intermodulation distortion in hybrid fiber-coaxial CATV systems." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part II [T-MTT] (1997 Symposium Issue)): 2183-2196.

The distortion optimization in a phase-controlled hybrid fiber coaxial (HFC) CATV system is presented both in the frequency domain and in the time domain. A general quadratic-phase relationship of the National Television System Community (NTSC) video carriers has been used as the basis for minimizing the peak/rms ratio of the broad-band signal as well as the second- and third-order intermodulation distortion products. Emphasis is placed on distortion products which fall outside the band occupied by the NTSC signals and thus degrade digital performance. An experimental phase-controlled coherent HFC CATV system consisting of 81 live video channels and four 64 quadrature amplitude modulation (QAM) digital channels has been used to demonstrate the advantages of an optimal phase-controlled headend over traditional systems.

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