NTSC VIDEO SIGNAL RECEIVERS WITH REDUCED SENSITIVITY TO INTERFERENCE FROM CO-CHANNEL DIGITAL TELEVISION SIGNALS

ABSTRACT OF THE DISCLOSURE

A video signal receiver with reduced sensitivity to interference from co-channel digital TV signals includes circuitry for selecting a vestigial sideband amplitude-modulation signal descriptive of a video signal, converting the selected VSB AM signal to an intermediate frequency signal, and amplifying the IF signal to provide an amplified IF signal. The VSB AM signal is selected from any single one of a plurality of channels which can contain co-channel interference from a digital television signal. The amplified IF signal is synchronously detected with respect to video carrier frequency for generating an in-phase synchronous detection response and for generating a quadrature-phase synchronous detection response. All frequency components of the quadrature-phase synchronous detection response above a prescribed frequency are phase shifted substantially 90° and are linearly combined with in-phase synchronous detection response for recovering lower frequency portions of the video signal, substantially free of artifacts from any co-channel interfering digital television signal. In some embodiments of the video signal receiver higher frequency portions of the video signal described in the full sideband of the VSB AM signal, but not in its vestigial sideband, are recovered by synchronously detecting the VSB AM signal after selective filtering to remove the pilot carrier signal component of any co-channel digital TV signal. The selective filtering avoids any artifact of such pilot carrier signal being generated when recovering higher frequency portions of the video signal. The lower and the higher frequency portions of the video signal are combined to obtain a fullband video signal.

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