METHOD AND APPARATUS FOR SCRAMBLING AND DESCRAMBLING OF VIDEO SIGNALS WITH EDGE FILL

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ABSTRACT

A video-scrambling system induces a random wobble i.e., time shifting, in the location of active portion of the video frame, without affecting the horizontal sync signal and colorburst in each video line, thus providing both security and concealment. The security is enhanced by filling in the gap between the nominal beginning of active video and the actual beginning of active video with a synthesized video signal which replicates the adjacent active video using a digitally generated filling pattern. Also, a random noise overlay further conceals the location of the gap. Additional concealment is provided by wiggling in time the location of the horizontal sync signal using one or two frequencies and also by randomly altering the location of the vertical sync signal. The NTSC digital encoding in accordance with the invention is simplified by using only two channels, chrominance and luminance, and by a heterodyne circuit for chrominance stability. NTSC encoding is enhanced by providing detail normally lost, by use of the chroma channel. Additionally, a non-standard video signal may be provided with a portion of the colorburst on the front porch of the horizontal blanking, thus allowing use of a relatively simple decoder.