



ABSTRACT

DIGITAL MODULATION PROCESS, AND MODULATOR IMPLEMENTING THE PROCESS

The successive symbols (a_i) of a digital stream are converted into phase increments ($\Delta\phi$) which are accumulated. A modulating phase (Ψ) is obtained by filtering the accumulated phase. A complex signal is produced whose argument represents the modulating phase. Two phase quadrature radio waveforms are respectively modulated on the basis of that complex signal, and a radio signal resulting from a combination of the two modulated waveforms is transmitted. The complex signal is, in turn, filtered digitally. Its real and imaginary components (I,Q) are converted into analog form, and are subjected to anti-aliasing analog filtering and then mixed with the two radio waveforms. Appropriate sizing of the digital filters provides efficient modulation with small envelope variations, causing little adjacent channel interference and a low error rate.