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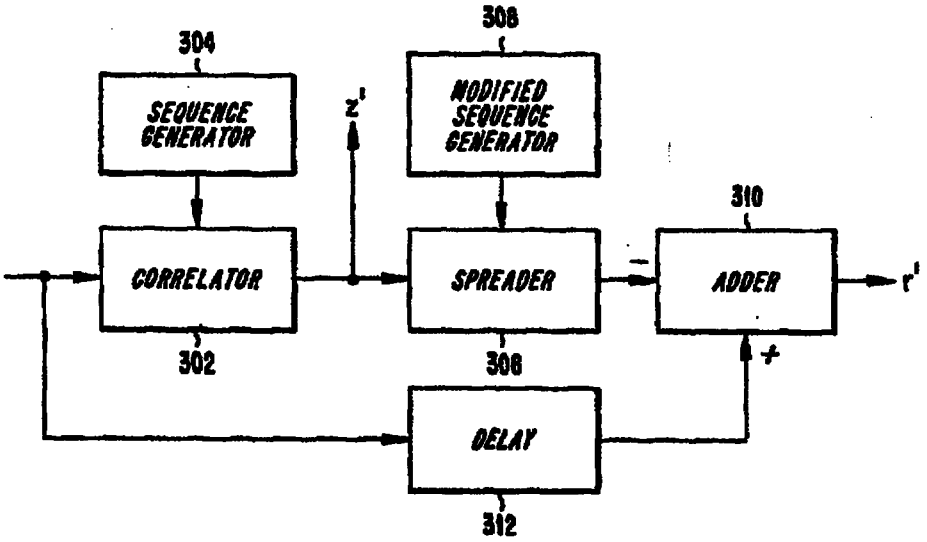

(57) Abstract

Orthogonalization techniques are disclosed which can be used, for example, to improve subtraction of CDMA signals from a composite spread spectrum signal or to improve detection of CDMA signals from the composite spread spectrum signal. According to exemplary embodiments, a Gram-Schmidt orthogonalization process is used to modify signature sequences which are each associated with a particular CDMA signal in the spread spectrum composite signal. These modified signature sequences can then be used to spread correlations of the original signature sequences in the subtraction process or in the detection process to improve performance. Pre-orthogonalization according to the present invention, eliminates or mitigates multiple access interference.