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(54) Method for estimating and compensating carrier frequency offset and I/Q imbalance

(57) A method for estimating and compensating carrier frequency offset (CFO) and I/Q imbalance introduced on an RF multicarrier signal received via a transmission channel on a direct downconversion analog receiver. The method comprises the steps of:
(a) rough CFO estimation by
- using a preamble comprising at least a first set of training symbols in 3 equal groups of length I and a second set of training symbols built by taking the first set and applying an artificial CFO on it, and
- measuring the angle rotation between the repeated training symbols and
- weighting the angle measurements;
(b) fine CFO estimation whereby a CFO-with -IQ algorithm is applied for high SNRs and a standard ML algorithm is applied for low SNRs. The CFO-with-IQ algorithm is based on weighted estimates of cosϕ and sinϕ based on the first and the second set of training symbols;
(c) combining the rough and fine CFO estimates to obtain a correct CFO estimate.

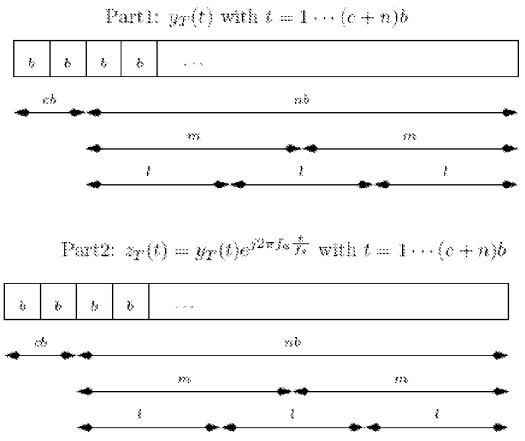

FIG. 7

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