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Abstract

A Modified Transposed Farrow Structure

There is provided a transposed Farrow structure for a receiver for a Software Defined Radio (SDR) system, a feedforward synchronizer for an SDR receiver comprising such a transposed Farrow structure and a method for processing a received signal in an SDR receiver. The transposed Farrow structure is arranged to implement: a) sample rate conversion (SRC) for converting a received signal r having a sampling rate of $\frac{1}{T_1}$ to a transmitted signal y having a sampling rate of $\frac{1}{T_2}$; b) timing adjustment using an estimated timing error τ; and c) matched filtering of the received signal. The feedforward synchronizer includes the transposed Farrow structure and a feedforward estimator for generating an estimated timing error τ. The method includes the steps of performing, in the transposed Farrow structure, sample rate conversion (SRC) for converting received signal r having a sampling rate of $\frac{1}{T_1}$ to a transmitted signal y having a sampling rate of $\frac{1}{T_2}$; performing, in the transposed Farrow structure, timing adjustment using an estimated timing error τ; and performing, in the transposed Farrow structure, matched filtering of the received signal.

Figure for publication - Figure 4.

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