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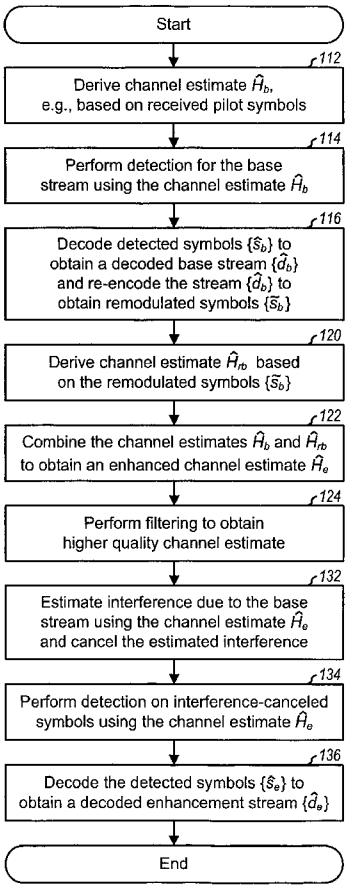
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(54) Title: CHANNEL ESTIMATION FOR A WIRELESS COMMUNICATION SYSTEM WITH MULTIPLE PARALLEL DATA STREAMS



(57) Abstract: To recover multiple data streams transmitted simultaneously, a first channel estimate is derived for a wireless channel based on received pilot symbols. Detection is performed on received data symbols using the first channel estimate to obtain detected symbols for a first data stream. These detected symbols are decoded to obtain a decoded first data stream, which is re-encoded to obtain remodulated symbols. A second channel estimate is derived based on the remodulated symbols. The first and second channel estimates are combined to obtain a third channel estimate having higher quality. Interference due to the first data stream is estimated using the third channel estimate and canceled from the received data symbols. Detection is performed on interference-canceled symbols using the third channel estimate to obtain detected symbols for a second data stream. These detected symbols are further decoded to obtain a decoded second data stream.

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