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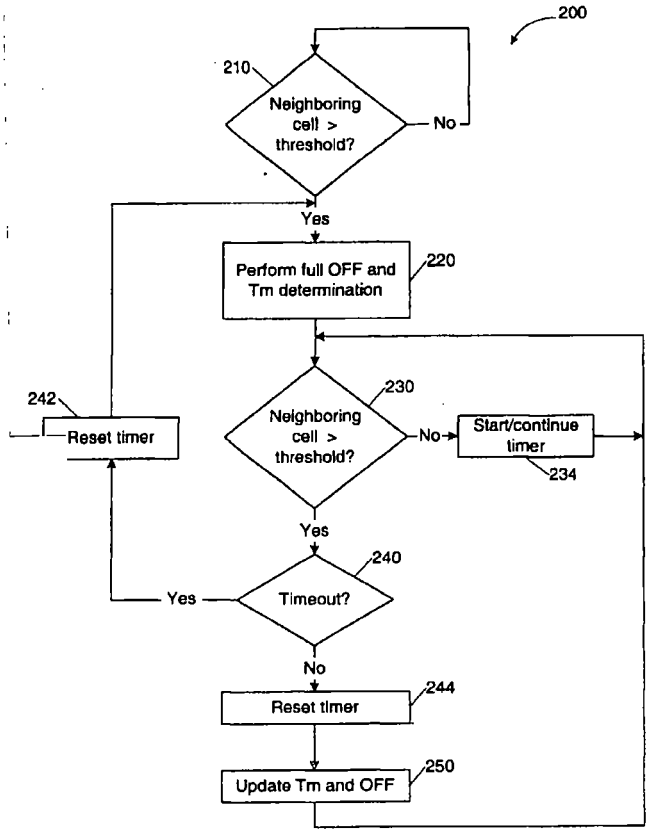
(54) Title: RADIO INTERFACE SYNCHRONIZATION



(57) Abstract: Various techniques are disclosed for unambiguously determining and tracking frame offset in asynchronous wireless communication user equipment. The user equipment determines the unambiguous connection frame number of a downlink channel. The equipment then determines frame timing information for neighbor cells. The frame timing information for the primary common control physical channel and uplink dedicated physical channels is determined. The frame timing is determined as a coarse resolution frame offset in conjunction with a fine resolution chip offset. The frame numbering information for the uplink and downlink dedicated physical channels and the primary common control physical channel is also determined. Then the frame number and timing information is updated using a counter accurate to one chip resolution. The frame offset is updated if the number of chips underflows or overflows a predetermined window. Frame timing may be updated by updating only the fine chip offset or may be completely determined.

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