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(54) **Method for channel estimation and cell search in cellular communication systems and apparatus therefor**

(57) In order to perform, according to a received signal (r), a channel-estimation procedure and a cell-search procedure in cellular communication systems, there are executed at least one first operation of correlation of said received signal (r) with secondary synchronization codes (SSC) and a second operation of correlation of said received signal (r) with known midamble codes (*mid*, MPL, MPS), whilst said channel-estimation procedure comprises a third operation of correlation of at least part of said received signal (r) with known midamble codes (*mid*, MPL, MPS), said first, second, and third correlation operation being executed by sending at least part ($e_{midamble}$) of said received signal (r) to an input of a correlation bank (111, 151; 203, 253; 303). There are envisaged the operations of:

- sending, in a first time interval, the received signal (r) to said correlation bank (303) for executing the

first operation of correlation of said received signal (r) with secondary synchronization codes (SSC);

- sending, in a second time interval, at least part ($e_{midamble}$) of said received signal (r) to said same correlation bank (303) for executing the second operation of correlation of said received signal (r) with known midamble codes (*mid*, MPL, MPS);
- sending, in a second time interval, the received signal (r) to said same correlation bank (303) for executing the third operation of correlation of at least part ($e_{midamble}$) of said received signal (r) with known midamble codes (*mid*, MPL, MPS).

Preferential application is in mobile communication systems based upon standards such as UMTS, CDMA2000, IS95 or WBCDMA.

EP 1 562 298 A8

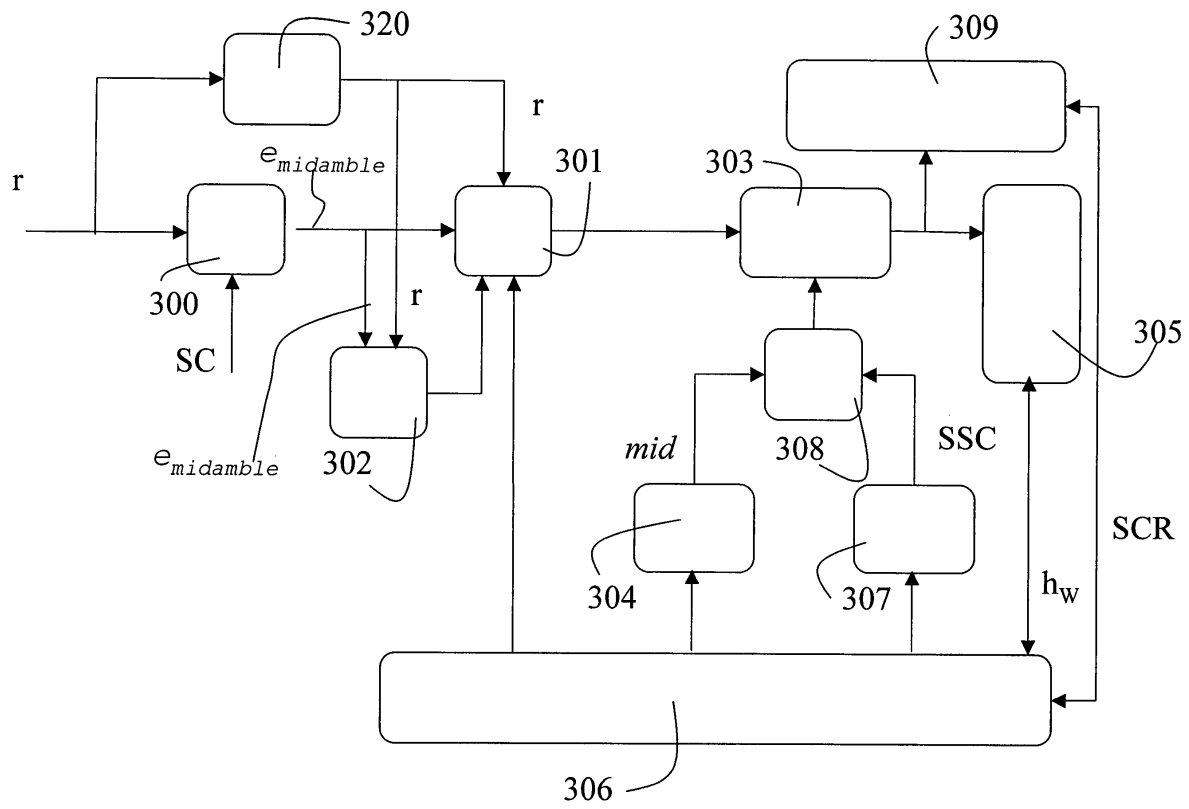


Fig. 5