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(54) Title: METHOD AND SYSTEM FOR DETERMINING POSITION OF A CELLULAR MOBILE TERMINAL

(57) Abstract

A method (500) and system (200) are disclosed by which a round-trip calculation is used to determine the distance between a mobile radio station (MS) (208) and a radio base station (BS) (BS0, BS1, BS2) using the apparent uplink and downlink signal propagation air-times (e.g., T-up and T-down). As such, no absolute time reference is required. The MS and BS report to a service node (203) in the mobile network (200) the local departure and arrival times (308, 328) of the uplink and downlink signals (212-215), and calculate the apparent air-times, T-up and T-down. The distance, D, between the MS and BS can be calculated as $D = c(T\text{-up} + T\text{-down})/2$, where "c" equals the speed of light. The distances, D1, D2 and D3, to at least three base stations whose locations are known, can be used in a triangulation algorithm to determine the MS's position.

