'RA1'.

[0024]

As indicated by arrow 312, the wireless terminal receives a signal comprising an indication in the form of a message termed 'Mobility from E-UTRAN Command' having a 'purpose' parameter set to 'Cell Change Order' (CCO) and a target RAT type set to GERAN as specified in 3GPP TS36.331, s5.4.3.3. The message also indicates a target GERAN cell (this being located within routing area RA1).

[0025]

In box 314, the wireless terminal starts the indicated CCO procedure and also starts a designated timer T3174 for CCO completion control and the terminal performs a reselection which serves to re-select the terminal to the target GERAN cell using the information provided in the 'Mobility from E-UTRAN Command' message. In this situation, the target GERAN cell is within the same RA1 with which the wireless terminal is associated by its registration (that is, the target GERAN cell is within the same routing area RA1 with which the wireless terminal is effectively already registered).

[0026]

Because of this, and because ISR is ON, and if there is no pending uplink data in the mobile terminal, there is no trigger for access to the GERAN cell (for example, a Routing Area Update request message). Such a trigger is required for a successful completion of the CCO procedure as specified in 3GPP TS44.060, s8.4.1. This represents a problem.

[0027]

In box 316, the timer T3174 expires and in box 318, the CCO procedure fails.

[0028]

~~The~~Embodiments of the present invention ~~seeks to~~ address the problem represented by the above-described CCO-to-GERAN failure when the mobile terminal is in E-UTRAN connected mode, ISR is ON and the RA is not changed, and ~~seeks to~~ provide a more robust and reliable intra-cell handover between different radio access networks.

Solution to Problem

[0029]

~~According to the invention there is provided a wireless terminal as claimed in Claim 1.~~

According to a first aspect of the present invention, there is provided a wireless terminal for use in a wireless cellular communication system comprising a radio access network (RAN) of a first type and also for use in a wireless cellular communication system comprising a radio access network (RAN) of a second type different from the first type, each RAN comprising at least one base station, the base stations of respective RANs being located in respective radio access cells that may be the same or different radio access cell, the wireless terminal being capable of being registered with a RAN of the first type and a RAN of the second type at the same time and being capable of being wirelessly connected to a RAN of either the first type or the second type in a connected state, wherein: the wireless terminal is arranged, when registered with both a first RAN of the first type and a second RAN of the second type and when wirelessly connected to the first RAN in the connected state, to receive a mobility signal via the first RAN indicating a RAN of the second type and, in response to receiving the mobility signal and in response to being so registered with the first RAN and second RAN, to transmit an access trigger signal for receipt by the second RAN, the trigger signal indicating that the wireless terminal is to be connected to the second RAN in the connected state.

According to a second aspect of the present invention, there is a method for use in a wireless terminal for use both in a wireless cellular communication system comprising a radio access network (RAN) of a first type and also in a wireless cellular communication system comprising a radio access network (RAN) of a second type different from the first type, each RAN comprising at least one base station, the base stations of the respective RANs being located in respective radio access cells that may be the same cell or different radio access cells, the wireless terminal being capable of being registered with a RAN of the first type and a RAN of the second type at the same time and being capable of being wirelessly connected to a RAN of either the first type or the second type in a connected state, the method comprising: when the wireless terminal is registered with both a first RAN of the first type and a second RAN of the second type and is wirelessly connected to the first RAN in the connected state, receiving a mobility signal via the first RAN indicating a RAN of the second type and, in response to receiving the mobility signal and in response to being so registered with the first RAN and second RAN, transmitting an access trigger signal for receipt by the second RAN, the trigger signal indicating that the wireless terminal is to be connected to the second RAN in the connected state.

[0030]

~~The claimed subject matter provides~~ Embodiments of the present invention provide a more robust and reliable inter-cell inter-RAT handover between different radio access networks and is well suited for use in the performing of

an inter-RAT handover between a E_UTRAN network and a UTRAN or GERAN network.

[0031]

Embodiments will now be described, by way of example only, with reference to the accompanying drawings.

Advantageous Effects of Invention

[0032]

~~The~~Embodiments of the present invention ~~can provide to~~ address the problem represented by the above-described CCO-to-GERAN failure when the mobile terminal is in E-UTRAN connected mode, ISR is ON and the RA is not changed, and provide a more robust and reliable intra-cell handover between different radio access networks.

Brief Description of Drawings

[0033]

[Fig. 1] Fig. 1 is a simplified representation of a node architecture of an E-UTRAN network;

[Fig. 2] Fig. 2 is a simplified representation of various elements of an E-UTRAN network;

[Fig. 3] Fig. 3 is an event diagram showing operations performed by entities of an E-UTRAN network according to current state of the art;

[Fig. 4] Fig. 4 is an event diagram showing operations performed by entities of an E-UTRAN network according to an embodiment;

[Fig. 5] Fig. 5 is an event diagram showing operations performed by entities of an E-UTRAN network according to another embodiment.

Description of Embodiments

[0034]

Turning to Fig. 4, an event diagram shows operations (represented by boxes) performed by entities (wireless terminal 302 for example a mobile terminal, E-UTRAN MME 304 and GERAN SGSN 306) wherein time is represented by a downward vertical direction (not to scale). One or more signals between entities are represented by horizontal arrows. In this example only one signal is shown and only operations performed by the wireless terminal are shown.

[0035]

In box 310, the wireless terminal 302 is connected to the E-UTRAN MME by means of signalling that takes place between the wireless terminal and the E-UTRAN MME. As a result of this connection, the wireless terminal is in a connected state in which the wireless terminal can