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**Tynderfeldt et al.**

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(54) **TIMING ALIGNMENT IN AN LTE SYSTEM**

(56) **References Cited**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1363 days.

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

(57) **ABSTRACT**

(60) Provisional application No. 60/985,379, filed on Nov. 5, 2007.

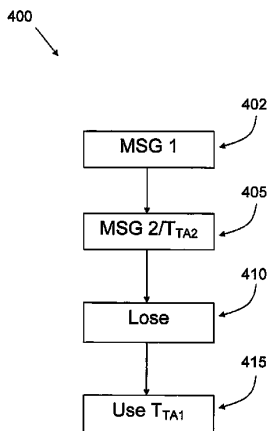
A method (500) for use in a user terminal (120, 130) in a cellular communications system (100). According to the method, the user terminal applies a first timing advance value (505) to its transmissions to a controlling node (140), and the user terminal (120, 130) requests communication with the controlling node (140) in a contention based procedure by transmitting an access request (MSG 1), in response (515) to which the controlling node transmits an initiation message (MSG 2) along with (520) a second timing advance value. According to the method (500), the user terminal (120, 130) uses (530) the first timing advance value if the user terminal loses the contention based procedure, i.e. if the controlling node subsequently continues the initiated communication with said other user terminal.

(51) **Int. Cl.**  
**H04J 3/06** (2006.01)  
**H04W 74/08** (2009.01)  
**H04W 56/00** (2009.01)

(52) **U.S. Cl.**  
CPC ..... **H04W 74/0841** (2013.01); **H04W 56/0005** (2013.01); **H04W 56/0045** (2013.01)

(58) **Field of Classification Search**  
CPC ..... H04W 56/00; H04W 56/001–56/0045; H04W 74/08; H04W 74/0833  
USPC ..... 370/310–350  
See application file for complete search history.

**22 Claims, 7 Drawing Sheets**



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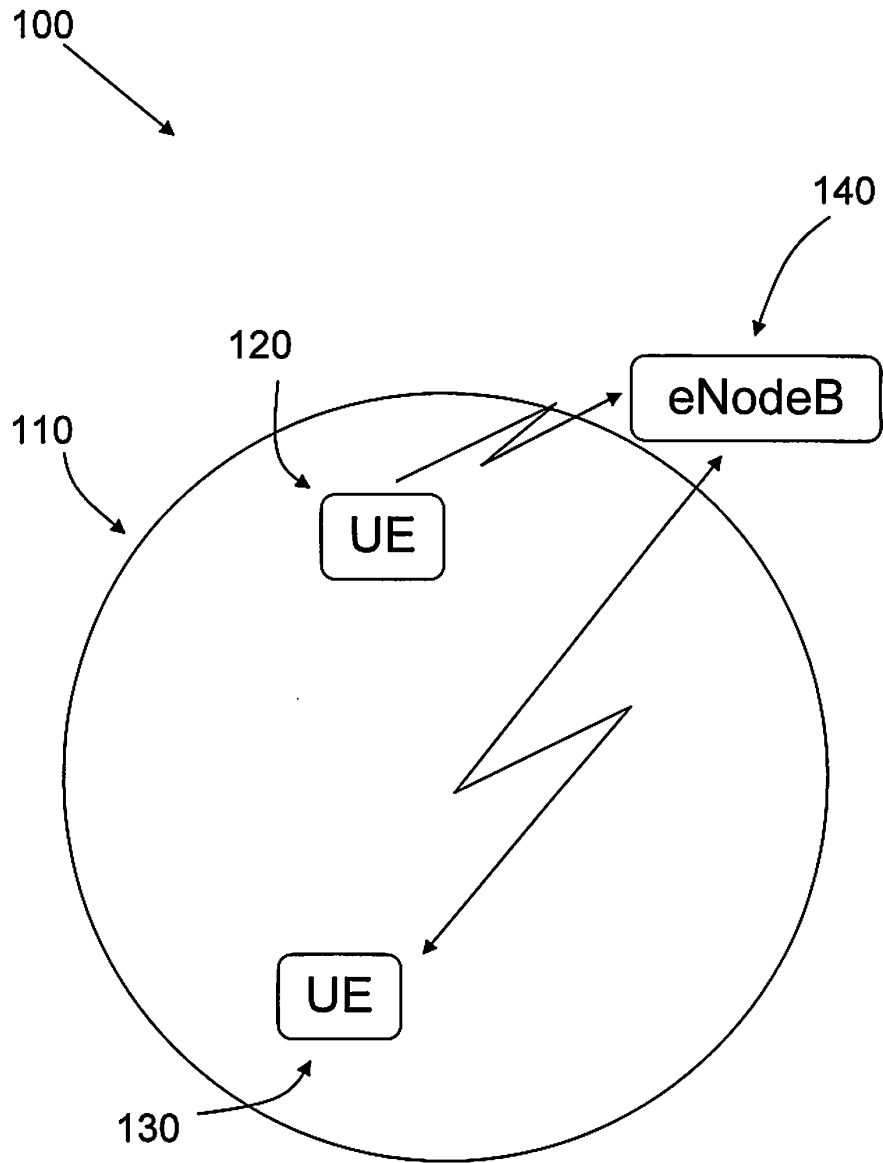


Fig 1

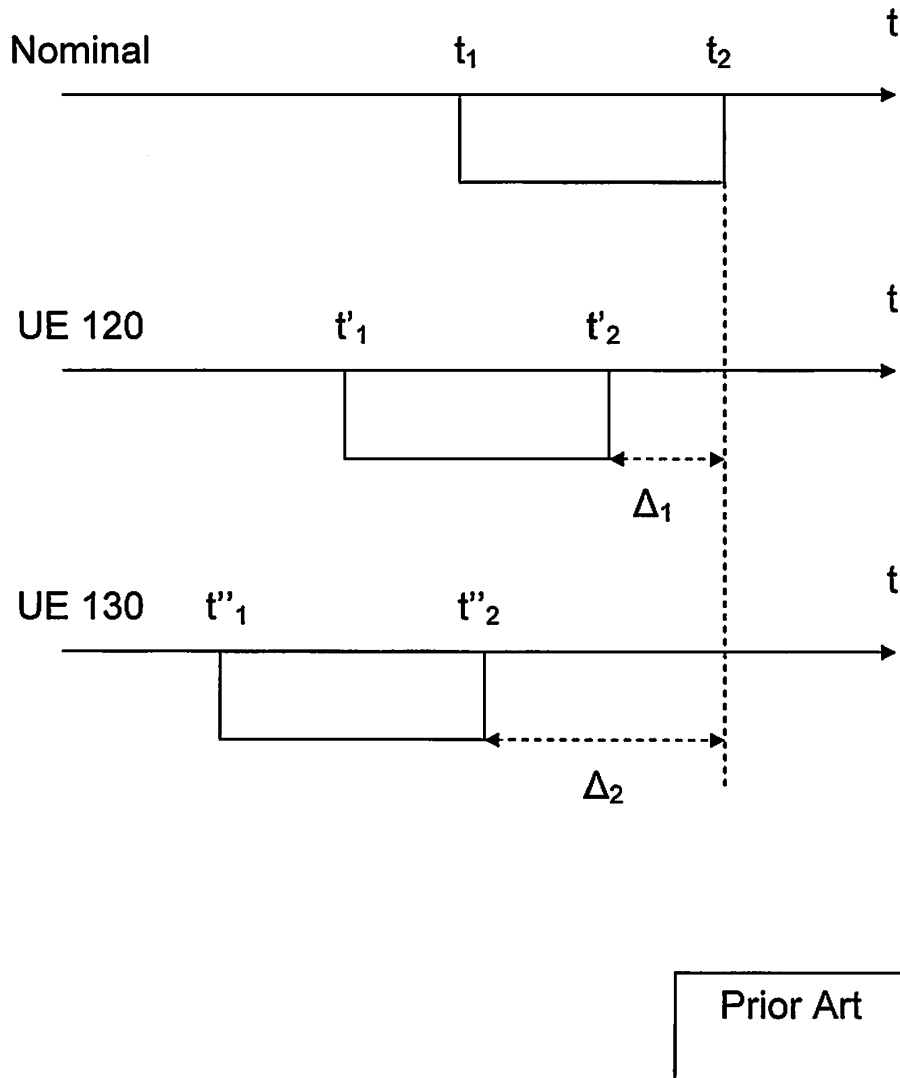


Fig 2

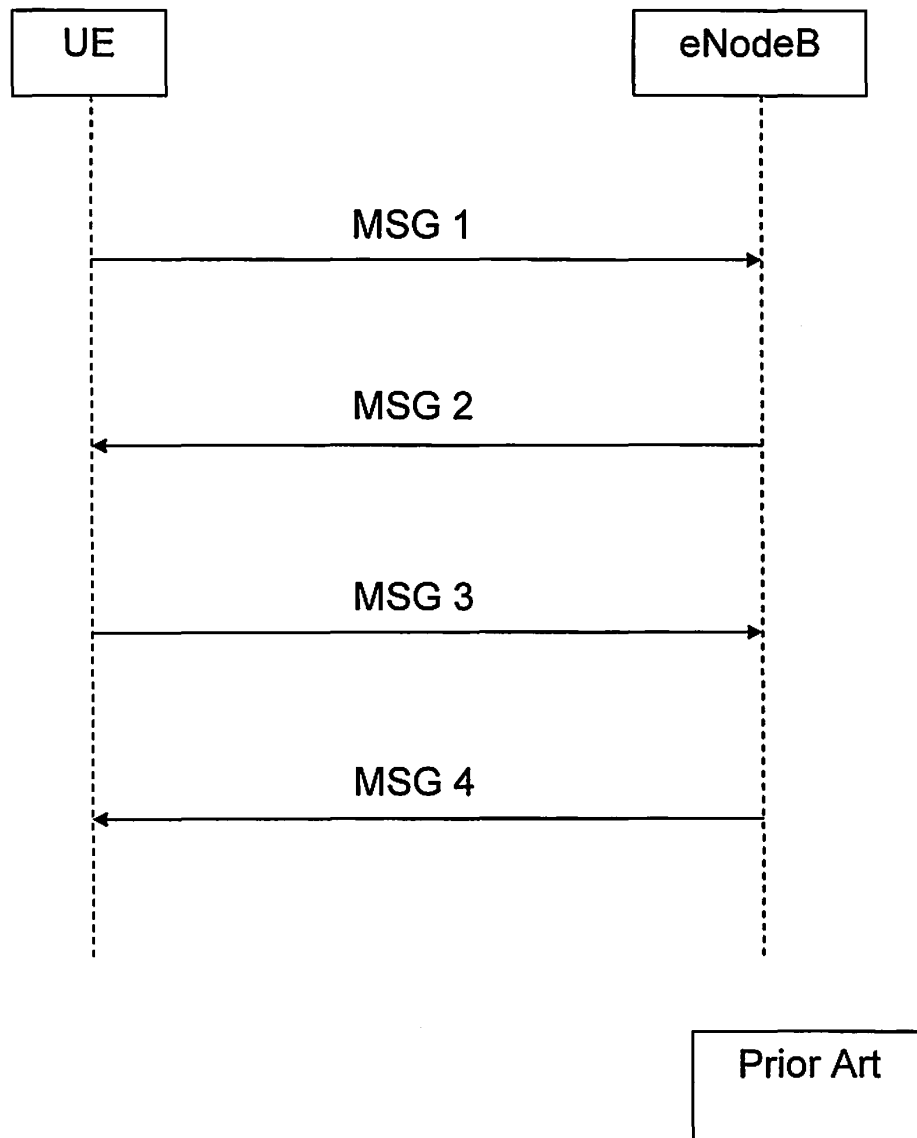


Fig 3

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