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Datasheet for the decision of 19 October 2021

Case Number: T 2702/16 - 3.5.03

Application Number: 09000104.1

Publication Number: 2161960

IPC: H04W56/00

Language of the proceedings: EN

Title of invention:
Method for uplink synchronisation in an LTE system and related mobile device

Applicant:
HTC Corporation

Headword:
Discarding PDCCH messages/HTC

Relevant legal provisions:
EPC Art. 83, 84, 123(2)
RPBA 2020 Art. 13(1)

Keyword:
Sufficiency of disclosure and clarity - main, 1st and 2nd auxiliary requests (no)
Admittance of request filed after the summons - 3rd auxiliary request (no) - no clear allowability under Art. 123(2) EPC

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Case Number: T 2702/16 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 19 October 2021

Appellant: (Applicant)	HTC Corporation No. 23, Xinghua Road Taoyuan District Taoyuan City 330 (TW)
Representative:	Wagner & Geyer Partnerschaft mbB Patent- und Rechtsanwälte Gewürzmühlstrasse 5 80538 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 17 June 2016 refusing European patent application No. 09000104.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	T. Snell
	C. Almberg

Summary of Facts and Submissions

I. This case concerns the appeal of the applicant against the decision of the examining division refusing the European patent application *inter alia* on the grounds of insufficiency of disclosure and clarity (Articles 83 and 84 EPC).

II. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 5 of the request filed during the examination proceedings on 23 March 2015 (**main request**).

Alternatively, the appellant requests that a patent be granted on the basis of the claims of either the auxiliary request as filed during the examination proceedings on 6 May 2016 (**first auxiliary request**), or the claims of the **second auxiliary request** as filed with the statement of grounds of appeal, or the claims of the **third auxiliary request** as filed with the submission dated 9 August 2021.

III. Oral proceedings were held on 19 October 2021. At the end of the oral proceedings, the chair announced the board's decision.

IV. Claim 1 of the **main request** reads as follows:

"A method utilized in a mobile device (110), comprising the steps of:
starting a time alignment timer (1103) when receiving a time alignment message transmitted by a base station (105a), wherein the time alignment timer (1103) is used for determining whether the mobile device (110)

is synchronized with the base station (105a) on uplink timing, the time alignment message being utilized to update timing advance for the mobile device (110);

characterized by:

discarding at least a first control message sent from the base station (105a) after the time alignment timer (1103) of the mobile device (110) expires, wherein the first control message includes downlink grant information or uplink grant information."

V. Claim 1 of the **first auxiliary request** differs from claim 1 of the main request in that the preamble reads as follows:

"A method utilized in a mobile device (110) for handling a reception of any PDCCH format data when the mobile device (110) is in an uplink non-synchronized state in a Long Term Evolution, LTE, wireless communication system, comprising the steps of: starting a time alignment timer (1103) when receiving a time alignment message transmitted by a base station (105a) of the LTE wireless communication system, wherein the time alignment timer (1103) is used for determining whether the mobile device (110) is synchronized with the base station (105a) on uplink timing, the time alignment message being utilized to update timing advance for the mobile device (110);".

VI. Claim 1 of the **second auxiliary request** reads as follows:

"A method utilized in a mobile device (110) in a wireless communication system, comprising the steps of:

starting a time alignment timer (1103) when receiving a time alignment message transmitted by a base station (105a), wherein the time alignment timer (1103) is used for determining whether the mobile device (110) is synchronized with the base station (105a) on uplink timing, the time alignment message being utilized to update timing advance for the mobile device (110);
not discarding a first control message comprising a cell radio network temporary identity, C_RNTI, and downlink grant information or uplink grant information and sent from the base station (105a) via a physical downlink control channel, PDCCH, before the time alignment timer (1103) of the mobile device (110) expires;

characterized by:

discarding any second control message comprising a C_RNTI and downlink grant information or uplink grant information and sent from the base station (105a) via the PDCCH after the time alignment timer (1103) of the mobile device (110) expires."

VII. Claim 1 of the **third auxiliary request** reads as follows:

"A method utilized in a mobile device (110) for handling a reception of any PDCCH format data when the mobile device (110) is in an uplink non-synchronized state in a Long Term Evolution, LTE, wireless communication system, comprising the steps of:
starting a time alignment timer (1103) of the mobile device (110) when receiving a time alignment message transmitted by a base station (105a) of the LTE wireless communication system, wherein the time alignment timer (1103) of the mobile device (110) is

used for determining whether the mobile device (110) is synchronized with the base station (105a) on uplink timing, the time alignment message being utilized to update timing advance for the mobile device (110);

characterized by:

discarding a first control message including downlink grant information or uplink grant information, said first control message being sent from the base station (105a) to the mobile device (110) after the time alignment timer (1103) of the mobile device (110) expires and before a second control message sent from the base station (105a) and including downlink data arrival information is received by the mobile device (110); and
performing a random access procedure for obtaining uplink synchronization once the mobile device (110) receives downlink data arrival information included within the second control message sent by the base station (105a) after the time alignment timer (1103) expires."

Reasons for the Decision

1. *Technical context*

1.1 The present application concerns re-establishment of uplink synchronisation in an LTE system. In such an LTE system, a time alignment timer used in the mobile station (henceforth, "UE"), when running, indicates to the UE that uplink synchronisation is established. The base station (henceforth, "eNB") sends time alignment command signals on the physical downlink control

channel (PDCCH) which cause the UE to restart its time alignment timer.

1.2 The present application concerns the problem of how to handle PDCCH control signals in the UE if the time alignment timer of the UE expires, i.e. when the uplink is in a *non-synchronised* condition. According to the most relevant embodiments illustrated in Figures 3 and 5 of the application, PDCCH control signals containing downlink grant information ("DL grant") or uplink grant information ("UL grant") are ignored in that event. In accordance with the embodiment of Figure 3, on expiry of a time alignment timer in the eNB, the eNB sends a control message indicating "downlink data arrival". On receipt of this message after expiry of its own time alignment timer, the UE performs a random access procedure to restore synchronisation. Alternatively, in accordance with the embodiment of Figure 5, a regular BSR ("buffer status report") to be sent by the UE is used to initiate a random access procedure.

2. ***Main request*** *- claim 1 - Article 83 EPC*

2.1 Claim 1 of the main request comprises the following limiting features, as labelled by the board:

A method utilised in a mobile device in a wireless communication system, comprising the steps of:
(a) starting a time alignment timer when receiving a time alignment message transmitted by a base station,
(b) wherein the time alignment timer is used for determining whether the mobile device is synchronized with the base station on uplink timing,

(c) wherein the time alignment message is utilised to update timing advance for the mobile device;
(d) discarding at least a first control message sent from the base station after the time alignment timer of the mobile device expires, wherein the first control message includes downlink grant information or uplink grant information.

2.2 In accordance with the established jurisprudence of the Boards of Appeal, the essential requirements for compliance with Article 83 EPC are that at least one way of carrying out the invention should be disclosed (see also Rule 42(1)(e) EPC) and that it should be possible to carry out the invention over the whole ambit of the claims.

2.3 The board does not dispute that the skilled person can carry out at least the specific embodiment of Figure 3. In this respect, the skilled person in the field of LTE systems would be able to program the UE to analyse the PDCCH control messages to determine whether they contain a "DL grant" or "UL grant", or a "DL data arrival" message, and to detect whether the timer 1103 of the mobile device has expired.

2.4 Nevertheless, claim 1 is so broad that the claimed invention cannot be performed over the whole ambit of claim 1. In this respect, the aim of the invention is to provide a method, in the context of an LTE system, of handling the reception of any PDCCH format data when the mobile device is in uplink non-synchronised state (cf. paragraph [0003] of the description as published, last sentence). Implicitly, the aim of the invention is also to provide a way to restore uplink synchronisation. However, the general solution claimed is not limited to LTE systems or to restoring

synchronisation. In addition, discarding at least a first control message including downlink grant information or uplink grant information according to feature (d) embraces discarding any number of such first control messages as well as any number of other control messages, as well as any type of subsequent processing to restore synchronisation. The teaching of the application does not enable the invention to be performed to the full extent claimed, since the teaching as regards claim 1 is limited to the two very specific embodiments of Figures 3 and 5.

2.5 Consequently, present claim 1 does not comply with Article 83 EPC.

3. ***Main request*** *– claim 1 – Article 84 EPC*

3.1 Claim 1 is not clear within the meaning of Article 84 EPC as it lacks *essential features* of the solution. Since the implicit aim of the application is to handle control messages in such a way as to lead to a restoration of synchronisation, those steps involving triggering a "random access procedure" are essential (cf. Fig. 3, the signals transmitted at times t_{11} and t_{12}).

3.2 The appellant argued that it followed from claim 1 that the UE "will **not** discard any (second) control message (1) which is received from the base station and (2') that **does not include** downlink grant information or uplink grant information" (cf. page 6, 2nd paragraph of the statement of grounds of appeal). The board however disagrees, since no second control message is defined in claim 1. Neither does it follow implicitly from the wording of claim 1 that another type of control message not including downlink grant

information or uplink grant information would not be discarded.

3.3 The appellant further argued that "[f]rom the context of the present invention it is known to a person skilled in the art that after the time alignment timer 1051 of the eNB has expired, the PDCCH message contains no DL grant or UL grant, but DL data arrival" (cf. page 6, 4th paragraph of the statement of grounds of appeal). However, claim 1 contains no steps specifying the handling of a PDCCH message containing "DL data arrival".

3.4 Consequently, present claim 1 does not comply with Article 84 EPC either.

4. First auxiliary request - claim 1 - Articles 83 and 84 EPC

The above observations concerning Articles 83 and 84 EPC apply, *mutatis mutandis*, to claim 1 of the first auxiliary request.

5. Second auxiliary request - claim 1 - Articles 83, 84 and 123(2) EPC

5.1 The above observations also apply, *mutatis mutandis*, to claim 1 of the second auxiliary request.

5.2 Moreover, the added step "not discarding a first control message ..." is formulated as a *negative* feature, although a claim should normally, where possible, be defined in terms of *positive* features. In the present case, it is in particular not clear whether "not discarding" is intended to mean that the first

control message is processed as normal (Article 84 EPC).

6. Third auxiliary request - claim 1 - admittance (Article 13(2) RPBA 2020)

6.1 The request was filed after notification of the summons to oral proceedings, in response to the accompanying preliminary opinion pursuant to Article 15(1) RPBA 2020. Amendments filed at this late stage of the appeal proceedings may only be admitted at the discretion of the board (Article 13(2) RPBA 2020). Leaving aside the question as to whether or not the filing of the third auxiliary request at such a late stage of the proceedings could be justified by exceptional circumstances and cogent reasons within the meaning of Article 13(2) RPBA 2020, the board relied - in the appellant's favour - on the criteria of Article 13(1) RPBA 2020 when exercising its discretion in the present case.

6.2 In accordance with Article 13(1) RPBA 2020, "[t]he Board shall exercise its discretion in view of, inter alia, the current state of the proceedings, the suitability of the amendment to resolve the issues which were admissibly raised by another party in the appeal proceedings or which were raised by the Board, whether the amendment is detrimental to procedural economy, and, in the case of an amendment to a patent application or patent, whether the party has demonstrated that any such amendment, prima facie, overcomes the issues raised by another party in the appeal proceedings or by the Board and does not give rise to new objections" (board's emphasis).

6.3 In other words, an amended set of claims need not be admitted if it comprises a claim which is not *clearly allowable*. Claim 1 of the present third auxiliary request is indeed not clearly allowable at least on the ground of non-compliance with Article 123(2) EPC for the following reasons:

(i) Claim 1 is apparently based on an *intermediate generalisation* not directly and unambiguously derivable from the application documents as filed, contrary to Article 123(2) EPC.

In this respect, claim 1 defines a method *intermediate* between the very general definition of claims 1 to 3 as filed, which are not limited to an LTE system, and Figure 3 together with the associated description from page 5, 2nd paragraph to page 6, 2nd paragraph of the application as filed. Although the appellant argued that claim 1 was supported by Figure 3 and the description, the board disagrees since Figure 3 defines a method which involves actions performed by both the UE and the eNB. In particular, the role of "Time alignment timer 1051" of the eNB is an integral part of the disclosure of Figure 3 and the associated description, and thus inextricably linked to the steps performed by the UE. Consequently, extracting from Figure 3 only steps performed by the UE has resulted in an intermediate generalisation not directly and unambiguously derivable from the application as filed.

(ii) The feature "discarding a first control message including downlink grant information or uplink grant information, said first control message being sent from the base station (105a) to the mobile device (110) after the time alignment timer (1103) of the mobile

device (110) expires and before a second control message sent from the base station (105a) and including downlink data arrival information is received by the mobile device" is apparently not directly and unambiguously disclosed in the application as filed, contrary to Article 123(2) EPC (board's underlining).

In this respect, there is no general teaching or clear technical instruction in the entire application that this "discarding" has to take place before receipt of the control message with "DL data arrival information". Indeed, the UE cannot control *when* that control message is actually sent. According to the application as filed, the "DL data arrival" information is sent **when the time alignment timer of the eNB expires** (see Fig. 3, time t_{11} and page 6, 2nd paragraph). Even if the specific example of Figure 3 complies with the sequence of steps claimed in claim 1, this does not mean that, from the view point of the UE, the discarding of the first control message *is based on* a temporal relationship with the receipt of the second control message. On the contrary, apparently the UE discards the first control message *without* considering whether and when the eNB might send a control message containing "DL data arrival" information.

6.4 The board therefore decided that the third auxiliary request is not to be admitted into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated