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Datasheet for the decision of 6 July 2015

Case Number: T 2432/11 - 3.5.03

Application Number: 01305495.2

Publication Number: 1180907

IPC: H04Q7/38

Language of the proceedings: EN

Title of invention:
Apparatus and method for acquiring an uplink traffic channel in a wireless communications system

Applicant:
Alcatel-Lucent USA Inc.

Headword:
Uplink traffic channel requests/ALCATEL

Relevant legal provisions:
EPC Art. 56
RPBA Art. 13(1)

Keyword:
Inventive step - main request and third auxiliary request (no)
Late-filed first and second auxiliary requests - admitted (no)

Decisions cited:

Catchword:

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Case Number: T 2432/11 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 6 July 2015

Appellant: (Applicant)	Alcatel-Lucent USA Inc. 600-700 Mountain Avenue Murray Hill, NJ 07974 (US)
Representative:	2SPL Patentanwälte PartG mbB Postfach 15 17 23 80050 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 22 July 2011 refusing European patent application No.01305495.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	F. van der Voort
Members:	K. Schenkel
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 01305495.2, publication number EP 1 180 907 A.

II. The reason given for the refusal was that the subject-matter of claims 1 to 5 did not involve an inventive step (Article 52(1) and 56 EPC) having regard to the disclosure of:

D1: US 6 031 832 A and

taking into account the common general knowledge in the field of telecommunication.

III. In the statement of grounds of appeal the appellant requested that the decision be set aside and that a patent be granted on the basis of claims 1 to 10 of a main request or, in the alternative, of a first or a second auxiliary request, all requests as filed with the statement of grounds of appeal.

IV. In a communication accompanying a summons to oral proceedings, without prejudice to its final decision, the board raised objections under Article 52(1) EPC in conjunction with Article 56 EPC (lack of inventive step) in respect of the subject-matter of claims 1 and 10 of all requests and in respect of claim 6 of the first auxiliary request, as well as objections under Article 123(2) EPC against claims 1, 6 and 10 of the main request, claims 1 and 10 of the first auxiliary request and claim 1 of the second auxiliary request.

V. In response to the summons, the appellant filed a substantive response dated 3 June 2015 together with a

further set of claims 1 to 10 of a third auxiliary request.

VI. Oral proceedings were held on 6 July 2015.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims of a main request as filed with the statement of grounds of appeal or, in the alternative, on the basis of claims of a first or a second auxiliary request, both requests as filed during oral proceedings, or on the basis of claims of a third auxiliary request as filed with the letter dated 3 June 2015.

At the end of the oral proceedings, after due deliberation, the chairman announced the board's decision.

VII. Claim 1 of the main request reads as follows:

"A method performed by a wireless communications mobile unit (202, FIG. 2), comprising the steps of:

transmitting (via 207) uplink traffic channel requests in a prescribed portion of a control channel resource to a base station (201); and

receiving (via 208) a response including an uplink traffic channel assignment from said base station;

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generating a control channel, including said control channel resource, exclusively dedicated to said mobile unit wherein said prescribed portion of said control channel resource is reserved exclusively for transporting uplink traffic requests from said mobile unit;

wherein said mobile unit and said base station a priori know the location of said prescribed portion of said control channel resource in said control channel, wherein control header information is not required to be transmitted with said uplink traffic channel requests;

wherein said step of transmitting (via 207) includes a step of controlling (via 209) said transmission to periodically repeat transmission of said uplink traffic channel request in said prescribed portion of said control channel resource prior to said mobile unit receiving a response from said base station; and

wherein latency is minimized in transmitting said uplink traffic channel requests."

VIII. Claim 1 of the first auxiliary request is identical to claim 1 of the main request except that, in the penultimate paragraph, the word "periodically" has been deleted and the following wording added at the end, i.e. after "... receiving a response from said base station":

"instead of waiting to receive a response message from the base station and/or waiting for a timer expiration".

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

"A method performed by a wireless communications base station (201), comprising the steps of:

monitoring (via 204, 205) at least one prescribed portion of a control channel resource of an incoming control channel to detect an incoming uplink traffic channel request from at least one mobile unit to which said control channel resource is exclusively dedicated,

said traffic channel request being repeatedly transmitted by said at least one mobile unit;

determining (via 205) whether any uplink traffic channel requests have been received and, if an uplink traffic channel request has been detected, assigning a traffic channel resource to said at least one requesting mobile unit; and

in response to a determination that at least one uplink traffic channel request has been received, transmitting (via 203, 205) a request response message including said traffic channel assignment to said at least one requesting mobile unit;

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utilizing (via 205) said received (via 204) traffic channel request to determine the true value of said, received traffic channel request by subtracting an amount of traffic channel resource that has been assigned to said mobile unit that is not known to the mobile unit as being assigned at the time said mobile unit transmitted an uplink traffic channel request from an amount of said traffic channel resource requested in said transmitted uplink traffic channel request."

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

"A method for use in a wireless communications mobile unit (202), the method comprising the steps of:

generating a dedicated control channel including a prescribed control channel resource, said dedicated control channel being dedicated exclusively to a particular mobile unit (202) and having a prescribed first portion (S1; S2; S3; S4) of said control channel resource reserved to transport uplink traffic channel requests and having a second portion of said control

channel resource for conveying other control messages; and

transmitting said uplink traffic channel requests in said prescribed first portion (S1; S2; S3; S4) of said control channel resource to a base station (201);

wherein said particular mobile unit (202) and said base station (201) a priori know the location of said prescribed first portion (S1; S2; S3; S4) of said control channel resource in said dedicated control channel, thus eliminating a need to include control header information with said uplink traffic channel requests."

Reasons for the Decision

1. Main request - *inventive step*

1.1 D1 relates to a method for packet communication in a system with a mobile station "VIP MS" (title and first two sentences of the abstract). In the description of the preferred embodiment, D1 refers multiple times to the GPRS (General Packet Radio Service) system and specifies for the respective features of the embodiment the corresponding features in the GPRS system, for example, column 4, lines 61 to 66 ("*For the GPRS, for example, these specially allocated physical channels can comprise a plurality of uplink and downlink channels. Specifically, one PDCH in the GPRS comprises one uplink and one downlink channel, and is defined as one physical channel dedicated for packet data.*"), column 6, lines 6 to 8 ("*In the GPRS, a VIP channel reservation request message can be sent over the uplink PRACH or Random Access Channel (RACH).*"), and lines 28 to 31 ("*At step 38, network 12 sends the packet over the downlink dedicated packet data channels*

(e.g., dedicated PDTCHs in the GPRS).").

In the GPRS system, the PDCH (Packet Data Channel) is the physical channel dedicated to packet data traffic (cf. D1, column 2, lines 11 to 15 ("*For example, referring to the current GPRS standard (GSM Technical Specification GSM 04.60, Version 0.9.1, Sep., 26, 1996)©, the physical channel dedicated to packet data traffic in the GPRS is called a Packet Data Channel (PDCH).*")). Further, in the GPRS system, the PDCH comprises further channels (cf. D1, column 4, lines 61 to 66 (see above)). Among these channels of the PDCH is the sub-channel PRACH (Packet Random Access Channel) which is used to initiate uplink transfer for sending data or signalling information (cf. D1, column 2, lines 15 to 19 ("*For a GPRS mobile-originated packet transfer, a MS* ["mobile station", cf. D1, column 1, lines 14 to 17] *initiates the packet transfer by making a random access request on the PDCH uplink over the Packet Random Access Channel (PRACH). The PRACH can be referred to as a "random access sub-channel".*", text in square brackets and underlining added by the board). Hence, in the GPRS system, the sub-channel PRACH for initiating uplink data transfer is part of the physical channel PDCH.

1.2 Taking into account the afore-mentioned GPRS features, D1, using the language of claim 1, discloses a method performed by a wireless communications mobile unit (D1, title and first two sentences of the abstract), comprising the steps of:
transmitting uplink traffic channel requests in a prescribed portion of a control channel resource to a base station (column 5, lines 25 and 26, column 7, lines 9 to 14, and Fig. 6); and

receiving a response including an uplink traffic channel assignment from said base station (column 7, lines 23 to 25, and Fig. 6);
generating a control channel, including said control channel resource, exclusively dedicated to said mobile unit[1)] (column 3, line 60, to column 4, line 2) wherein said prescribed portion of said control channel resource is reserved exclusively for transporting uplink traffic requests from said mobile unit[2)];
wherein said mobile unit and said base station a priori know the location of said prescribed portion of said control channel resource in said control channel[3)];
and wherein latency is minimised in transmitting said uplink traffic channel requests (the fact that the mobile station "VIP MS" can send its uplink traffic channel request via an exclusive channel results in reduced delays, see also D1, claim 23).

[1)]: D1, cf. column 3, line 60 to column 4, line 10, discloses that the physical channels required for packet transfer are allocated exclusively to the mobile station "VIP MS". Further, at column 4, lines 61 to 66, these specifically allocated physical channels, for the GPRS system, are further specified as packet data channels PDCHs, each comprising an uplink and a downlink channel. Since, in the GPRS system the packet data channel PDCH comprises the channel PRACH (D1, column 2, lines 15 to 19, and column 7, lines 12 to 17, 21 and 22), it follows that the channel PRACH and, hence, the control channel resource, is also exclusively allocated to the mobile station "VIP MS".

[2)]: According to column 7, lines 12 to 17, in combination with column 7, lines 21 and 22, the sub-channel carrying the packet channel request, i.e. the PRACH, is specified as reserved and allocated to the

mobile station "VIP MS". Further, Fig. 7 illustrates the use of certain random access channels reserved exclusively for the VIP MS, in order to avoid uplink access collisions (D1, column 7, lines 45 to 47). Hence, the PRACH is thereby exclusively reserved for transmitting packet channel requests.

3): D1, cf. column 5, lines 30 to 33, discloses that the network is preferably a TDMA network. Further, in column 6, lines 55 to 63, it is stated that in a TDMA network data of a particular physical channel is transmitted in a particular time slot in consecutive TDMA frames. Since the prescribed portion for transmitting the uplink traffic requests is part of the physical channel PDCH assigned to the mobile station "VIP MS" (column 4, lines 61 to 66), it follows that the prescribed portion uses a particular time slot in the TDMA frames which has to be known to both the base station and the mobile station in order for them to be able to communicate. Thus, the location of the prescribed portion with respect to time is known a priori to the mobile unit and to the base station.

Further, since the prescribed portion for transmitting the uplink channel requests is the PRACH channel (see footnote 2)) and both the base station and the mobile station have to know that in order to be able to communicate, the location of the prescribed portion also with respect to the sub-channel is known to them a priori.

1.3 The subject-matter of claim 1 thus differs from the method disclosed in D1 in that according to claim 1:

i) a control header information is not required to be transmitted with the uplink traffic channel requests; and

ii) said step of transmitting includes a step of controlling said transmission to periodically repeat transmission of said uplink traffic channel request in said prescribed portion of said control channel resource prior to said mobile unit receiving a response from said base station.

Feature i) does not limit the subject-matter of claim 1 to a method in which the uplink traffic channel requests are always transmitted without control header information. Thus, feature i) has no limiting effect on the claim and cannot contribute to an inventive step. Regarding feature ii), one technical effect achieved is that, since the risk of dead-lock after an uplink traffic channel request is lost is reduced, the transmission efficiency is increased.

1.4 Starting out from D1, the technical problem underlying the claimed method may thus be seen as increasing the transmission efficiency, including coping with lost uplink traffic channel requests. The formulation of this technical problem does not contribute to an inventive step, since increasing the transmission efficiency was a common objective in the field of telecommunication at the priority date of the present application.

1.5 The above-mentioned problem is already mentioned in D1. In the description of the related art (cf. column 1, lines 38 to 45), possible reasons for a channel reservation not having been made by the base station are discussed. As a remedy, D1 describes at column 1,

lines 35 to 38, that the mobile station, if it does not receive a traffic channel reservation from a base station within a predetermined period of time, retransmits the uplink channel request. This solution is discussed again in the context of GPRS at column 2, lines 39 to 44.

If, following this procedure, a mobile station retransmits an uplink traffic channel request, because the base station's response did not arrive within a predetermined period of time, the mobile station *de facto* repeats the transmission of the uplink traffic channel request prior to receiving a response from the base station.

Hence, on applying this teaching of D1 in connection with the related art to the proposed method disclosed in D1 (cf. point 1.2 above), the skilled person would, without exercising inventive skill, arrive at a method which includes all the features of claim 1.

1.6 The appellant argued that D1 does not mention the problem of an uplink traffic request getting lost, unlike the present application (cf. the application as published (EP 1 180 907 A2), column 4, lines 53 to 55). Further, the appellant argued that in the system of D1 the problem of collisions is already solved by providing the reserved channel, and a repetition of the transmission of an uplink traffic request was therefore not necessary.

However, the board is not convinced by these arguments for the following reasons:

An uplink traffic request may also get lost for other reasons, such as channel impairment. Since this can

always happen, even with a reserved sub-channel for the uplink traffic requests, it would have been obvious to the skilled person to implement in the method of D1 a mechanism which copes with the risk of lost uplink traffic requests.

1.7 For the above reasons, the subject-matter of claim 1 does not involve an inventive step (Articles 52(1) and 56 EPC). The main request is therefore not allowable.

2. First auxiliary request - *admissibility*

2.1 The first auxiliary request was submitted during oral proceedings and replaced the first auxiliary request submitted with the statement of grounds of appeal.

2.2 In accordance with Article 13(1) RPBA, "Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy."

2.3 In accordance with established case law, late-filed requests comprising new claims which are *prima facie* not allowable are generally not admitted.

2.4 Compared to claim 1 of the main request, claim 1 of the first auxiliary request omits the word "periodically", which further characterised the repeated transmission of the uplink traffic channel request, and adds a statement that the uplink traffic channel requests are transmitted repeatedly "instead of waiting to receive a response message from the base station and/or waiting for a timer expiration".

2.5 The deletion of the word "periodically" removes a limitation from claim 1 without implying the addition of any further technical feature(s) to the claimed method and, hence, does not contribute to inventive step.

The above-mentioned added statement is unclear for the following reason. Without it, claim 1 already comprises the feature that the mobile station repeats the transmission of the uplink traffic channel prior to the reception of a response from the base station, which means that the repeated transmission occurs without waiting for the response. Hence, it is unclear to what extent, if at all, the first alternative, i.e. "instead of waiting to receive a response message from the base station", further limits the claimed method.

The second alternative, i.e. "instead of ... waiting for a timer expiration", refers to a timer without further specifying the timer and how its function is linked to the other features of claim 1. Hence, it is unclear which further limiting technical feature of the claimed method is implied by not waiting for the expiration of a timer.

The board therefore concluded that claim 1 of the first auxiliary request is *prima facie* unclear.

2.6 Further, the board noted that in the application as filed the repeated transmission of the traffic channel requests is, without exception, disclosed as "persistently" transmitting the requests (see paragraphs [0004], [0005], [0011], [0012], [0014] and [0022] and claims 4, 6, 10, 11, 21, 23, 26 and 27).

Although several meanings of "persistently" are conceivable, it has undeniably a technical meaning which further characterises the repeated transmission of the uplink traffic channel requests. This was not contested by the appellant.

Claim 1 of the first auxiliary request does not however include this limitation.

Hence, the board concluded that the subject-matter of claim 1 of the first auxiliary request *prima facie* extended beyond the content of the application as filed.

2.7 In view of the above, claim 1 of the first auxiliary request was not clearly allowable. The board, exercising its discretion under Article 13(1) RPBA, therefore did not admit the first auxiliary request into the appeal proceedings.

3. Second auxiliary request - *admissibility*

3.1 The second auxiliary request was submitted during oral proceedings and replaced the second auxiliary request submitted with the statement of ground of appeal.

3.2 Claim 1 of the second auxiliary request is partly based on a combination of claims 7, 10, 11 and 12 as filed and is directed to a method carried out by a base station servicing a mobile station. Since claim 1 merely refers to the uplink traffic channel request "being repeatedly transmitted", i.e. omitting "persistently", the considerations set out in point 2.6 above apply *mutatis mutandis*.

3.3 The board therefore did not admit the second auxiliary request into the appeal proceedings (Article 13(1) RPBA).

4. Third auxiliary request - *inventive step*

4.1 Claim 1 of the third auxiliary request is based on claim 1 as filed and is further limited in that:

i) the control channel, which is dedicated exclusively to a particular mobile unit, is referred to as a "dedicated control channel"; and in that

ii) the control channel comprises, in addition to the prescribed portion reserved to transport uplink traffic channel requests, which is now specified as a first portion, a second portion for conveying other control messages.

4.2 In comparison with claim 1 of the main request, which is also based on claim 1 as filed, claim 1 of the third auxiliary request consists of features which are all part of claim 1 of the main request and, in addition, the above-mentioned feature ii).

4.3 D1, cf. column 4, lines 61 to 66, discloses that the physical channel PDCH comprises multiple channels, i.e. one uplink and one downlink channel. The uplink channel is used to transmit the uplink traffic channel requests and, using the language of feature ii), may be regarded as the first portion of the control channel. Regarding the traffic on the downlink channel, D1, cf. column 7, lines 27 to 29, discloses that a packet resource assignment message is sent via the PRACH downlink. Thus, the downlink channel may be regarded as the

second portion of the control channel for conveying other control messages. Hence, D1 also discloses feature ii).

4.4 The appellant argued that in one embodiment of D1 the reserved random access channel is only a sub-channel of the Packet Common Control Channel (PCCCH), which is used in the GPRS system, and that this PCCCH includes *inter alia* the Packet Random Access Channel (PRACH), which is used by the mobile station to send a packet channel request. This reserved random access sub-channel of D1 is therefore a sub-channel of a common control channel which is shared by a plurality of mobile units. Therefore, D1 did not anticipate a dedicated control channel dedicated exclusively to a particular mobile.

In this respect, the appellant added that in column 1 of D1 collisions between two or more mobile units are mentioned. Further, the appellant referred to claim 1 of D1 which states that the mobile station has only reserved access to the second channel, which corresponds in D1 to the PRACH channel, and was explicitly not for exclusive use. Further, the appellant referred to claim 13 of D1 which specifies that the step of reserving a second channel comprises dimensioning a random access channel "such that a rate of random access collisions between uplink traffic is reduced".

The board is however not convinced by these arguments for the following reasons.

D1 discloses that the physical channel PDCH is allocated exclusively to one mobile unit and embraces further channels including the logical channel PRACH,

which is used for transmitting the packet channel request and which corresponds to the reserved random access sub-channel (see points 1.1 and 1.2 (footnotes 1) and 2)) above). Thus, also the random access sub-channel is exclusively allocated to or, in other words, dedicated to one mobile unit.

The disclosure of collisions between messages in column 1 of D1 is in the context of the related art and, hence, does not alter the description of the embodiment in D1. Regarding claim 13, the board notes that it is a dependent claim which, by its nature, only specifies an additional feature which may optionally be added to the method of claim 1. In this respect, the board notes that D1, following the disclosure of the reserved random access sub-channel for sending the packet channel request message (cf. column 7, lines 9 to 17), discloses a further solution (cf. column 7, lines 17 to 19) according to which the sub-channel is dimensioned to reduce the likelihood of collisions with other mobile stations. However, this solution is explicitly referred to as an alternative, less desirable solution. Hence, the solution with a sub-channel dimensioned to only reduce the likelihood of collisions is merely disclosed as an alternative to the solution with an exclusively reserved sub-channel without collisions.

Further, the appellant argued that in D1 an uplink Packet Data Channel PDCH, which is used as a reserved random access channel, did not comprise a first portion reserved for uplink traffic channel requests and a second portion for conveying other messages, and that D1 was silent as to how a dedicated PDCH could be used as a dedicated random access channel. The board notes that the Packet Data Channel PDCH in D1 is described as a physical channel which comprises a plurality of

uplink and downlink channels (cf. column 4, lines 61 to 66). Thus, the physical channel PDCH itself is not used as a sub-channel, but comprises several sub-channels, one of them being reserved for the uplink traffic requests. Hence, the random access sub-channel of D1 which is reserved for uplink traffic channel requests may itself be regarded as a first portion of the control channel resource, and a further sub-channel of the physical Packet Data Channel PDCH may be regarded as a second portion.

Further, the appellant argued that a conventional GPRS system would not expect uplink traffic channel requests on the PDCH channel. In this respect, the board notes however that in the system of D1 the PRACH channel, which is used for transporting uplink traffic channel requests (see point 1.1 above), is part of the physical Packet Data Channel PDCH. Hence, whether or not a conventional GPRS system would expect uplink traffic channel requests on the PDCH is not relevant in this respect.

The appellant further argued that D1 did not disclose that the mobile station and the base station know a priori the location of the prescribed first portion of the control channel resource and that the general remarks regarding the time slots in the TDMA frames did not hint at such a priori knowledge. The board does not follow this argument for the following reasons:

The respective feature of claim 1 of the third auxiliary request ("wherein said particular mobile unit (202) and said base station (201) a priori know the location of said prescribed first portion (S1; S2; S3; S4) of said control channel resource in said dedicated control channel") is concerned with the location of the

first portion of the control channel resource. However, the term "location" is not further specified in the application and, hence, may be interpreted in various ways, e.g. as a specific channel or as an indication of the specific time of transmission. D1 discloses specific time slots as the channel for transmitting the uplink traffic channel requests. This therefore constitutes information about where the first prescribed portion of the control channel resource is located, and the mobile station and the base station, in order to communicate with each other, need to have this information in advance.

The appellant argued that a reserved random access sub-channel or reserved time slots would have to be allocated beforehand, implying that there cannot be any a priori knowledge. The board is not convinced by this argument for the following reason:

The application does not further specify the term "a priori" or a point in time before which the mobile unit and the base station have the knowledge about the location. Thus, "a priori" may be interpreted as any time before the transmission, and this also holds true in cases where the sub-channel or a time slot has first to be allocated.

4.5 For the above reasons, the subject-matter of claim 1 of the third auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC). The third auxiliary request is therefore not allowable.

5. As the main request and the third auxiliary request are not allowable and the first and second auxiliary requests are not admissible, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh F. van der Voort

Decision electronically authenticated