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**Datasheet for the decision
of 1 July 2025**

Case Number: T 1223/23 - 3.5.05

Application Number: 11850274.9

Publication Number: 2656524

IPC: H04J3/16, H04L1/18, H04W52/32,
H04L1/16, H04W52/54, H04W52/14

Language of the proceedings: EN

Title of invention:

Method and apparatus for transmitting and receiving signals in
wireless communication system

Patent Proprietor:

Pantech Corporation

Opponent:

BARDEHLE PAGENBERG Partnerschaft mbB
Patentanwälte, Rechtsanwälte

Headword:

PUCCH format determination/PANTECH

Relevant legal provisions:

EPC Art. 54, 100(a), 111(1), 114(2)
RPBA 2020 Art. 11, 13(2)

Keyword:

Admittance of late-filed argument - (yes): technically correct interpretation of prior-art document takes precedence over formal or procedural considerations

Novelty - claim 1 of patent as granted (yes)

Remittal to the opposition division - (yes): "special reasons"

Decisions cited:

T 1914/12, T 1617/23



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 1223/23 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 1 July 2025

Appellant:

(Patent Proprietor)

Pantech Corporation
10F, 251, Gangnam-daero
Secho-gu
Seoul 06735 (KR)

Representative:

Bosch Jehle Patentanwaltsgesellschaft mbH
Flüggenstraße 13
80639 München (DE)

Respondent:

(Opponent)

BARDEHLE PAGENBERG Partnerschaft mbB
Patentanwälte, Rechtsanwälte
Postfach 86 06 20
81633 München (DE)

Representative:

Bardehle Pagenberg Partnerschaft mbB
Patentanwälte Rechtsanwälte
Prinzregentenplatz 7
81675 München (DE)

Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
3 May 2023 concerning maintenance of the
European Patent No. 2656524 in amended form.**

Composition of the Board:

Chair

K. Bengi-Akyürek

Members:

J. Eraso Helguera

R. Romandini

Summary of Facts and Submissions

- I. This case concerns the appeal filed by the proprietor against the interlocutory decision of the opposition division to maintain the opposed patent as amended in accordance with "auxiliary request 7" filed during the opposition proceedings.
- II. The decision under appeal mentioned, *inter alia*, the following prior-art document:
- D2:** LG Electronics: "ACK/NACK on PUCCH for TDD",
R1-106099, 3GPP TSG RAN WG1 Meeting #63,
Jacksonville, US, 15-19 November 2010.
- III. Oral proceedings before the board were held on 1 July 2025.

The proprietor (appellant) requested, as its **main request**, that the appealed decision be set aside and that the opposition be rejected.

In the alternative, it requested that the patent be maintained in amended form on the basis of the claims of one of **auxiliary requests 1, 6, 6a, 6b, 1a, 2, 2a, 3, 3a, 4, 4a, 5 and 5a**.

The opponent (respondent) requested that the appeal be dismissed and that the new argument invoked by the appellant during the oral proceedings before the board not be admitted into the appeal proceedings.

At the end of the oral proceedings, the board announced its decision.

IV. Granted **claim 1** (i.e. claim 1 of the **main request**) reads as follows:

"A base station (2005) for transmitting control information in a TDD system using a single carrier, the base station (2005) comprising:

a format determining unit (2045) adapted to determine a PUCCH format of a UL subframe;
a transceiving unit (2015) adapted to perform transmission on a PDCCH in one or more DL subframes corresponding to the UL subframe;
a resource allocating unit (2050) adapted to set ACK/NACK resource indicating information indicating resources for transmitting a HARQ ACK/NACK signal on the PUCCH; and
a controlling unit (2035) adapted to transmit at least one of a TPC command for controlling PUCCH transmission power and the ACK/ NACK resource indicating information in the UL subframe through the transceiving unit (2015),
wherein a HARQ ACK/NACK signal for the DL subframes corresponding to the UL subframe is received on the PUCCH in the UL subframe using a PUCCH format determined by the format determining unit (2045),
characterised in that the controlling unit (2035) is adapted to transmit the TPC command on the PDCCH in at least one of the DL subframes corresponding to the UL subframe and to transmit the ACK/NACK resource indicating information using bits allocated in order to transmit the TPC command on the PDCCH in DL subframes in which the TPC command is not transmitted among the DL subframes corresponding to the UL subframe, and the format determining unit (2045) is adapted to determine that the PUCCH format is a PUCCH format 3 when at

least two DL subframes correspond to the UL subframe, and
that the PUCCH format is PUCCH formats 1a/1b when only a single DL subframe corresponds to the UL subframe."

Granted **claim 3** (i.e. claim 3 of the **main request**) reads as follows:

"A user equipment (2000) for transmitting a HARQ ACK/NACK signal in a TDD system using a single carrier, the user equipment (2000) comprising:

a transceiving unit (2010) adapted to transceive information;
a resource determining unit (2040) adapted to determine resources used to transmit a HARQ ACK/NACK signal for one or more DL subframes corresponding to a UL subframe on a PUCCH in the UL subframe; and
a controlling unit (2030) adapted to control transmission of the UL subframe,
characterised in that the transceiving unit (2010) is adapted to receive a TPC command on a PDCCH in at least one of the DL subframes corresponding to the UL subframe and to receive the ACK/NACK resource indicating information transmitted using bits allocated in order to transmit the TPC command on the PDCCH in DL subframes in which the TPC command is not transmitted among the DL subframes corresponding to the UL subframe,
the controlling unit (2030) is adapted to control transmission power of the PUCCH based on the TPC command, the resource determining unit (2040) is adapted to determine that a resource indicated by the ACK/NACK resource indicating information is a

resource used to transmit the HARQ ACK/NACK signal, and that the ACK/NACK resource indicating information indicates a resource of a PUCCH format 3 when the number of DL subframes corresponding to the UL subframe is two or more and a resource of PUCCH formats 1 a/1 b when the number of DL subframes corresponding to the UL subframe is one."

Reasons for the Decision

1. MAIN REQUEST (PATENT AS GRANTED)

Claim 1 as granted comprises the following limiting features (outline used in the appealed decision):

- 1.A A base station (BS) for transmitting control information in a TDD system using a single carrier, the BS comprising:
- 1.B a format determining unit adapted to determine a PUCCH format of a UL subframe;
- 1.C a transceiving unit adapted to perform transmission on a PDCCH in one or more DL subframes corresponding to the UL subframe;
- 1.D a resource allocating unit adapted to set ACK/NACK resource indicating information indicating resources for transmitting a HARQ ACK/NACK signal on the PUCCH;
- 1.E a controlling unit adapted to transmit at least one of a TPC command for controlling PUCCH transmission power and the ACK/NACK resource indicating information in the UL subframe through the transceiving unit,
- 1.F a HARQ ACK/NACK signal for the DL subframes corresponding to the UL subframe is received on

- the PUCCH in the UL subframe using a PUCCH format determined by the format determining unit,
- 1.G the controlling unit is adapted to transmit the TPC command on the PDCCH in at least one of the DL subframes corresponding to the UL subframe and to transmit the ACK/NACK resource indicating information using bits allocated in order to transmit the TPC command on the PDCCH in DL subframes in which the TPC command is not transmitted among the DL subframes corresponding to the UL subframe,
- 1.H the format determining unit is adapted to determine that the PUCCH format is a PUCCH format 3 when at least two DL subframes correspond to the UL subframe,
- 1.I the PUCCH format is PUCCH formats 1a/1b when only a single DL subframe corresponds to the UL subframe.

1.1 Claim 1 - novelty (Articles 100(a) and 54 EPC)

- 1.1.1 In Reasons 4 of the decision under appeal, the opposition division came to the conclusion that the subject-matter of claim 1 as granted was not new in view of "Option 1" of document **D2**.
- 1.1.2 The appellant submitted that **features 1.I and 1.H** specified that the used PUCCH format was decided based on *how many* DL subframes corresponded to a particular UL subframe. According to the appellant, the statement "a single PDSCH with the corresponding PDCCH of DAI='00' on PCell only" in the section "Summary of Option 1" of D2 merely expressed that the first allocated PDCCH/DL subframe of DAI='00' with the actual TPC command corresponded to a **single** PDSCH/DL **subframe** on PCell in that frame. Thus, the teaching of

"Option 1" in D2 actually was:

- to use PUCCH format 1a/1b for a *single* PDSCH/DL subframe transmission per frame, or
- to use PUCCH format 3 for *two or more* PDSCH/DL subframe transmissions per frame.

In the appellant's view, the scheme of document D2 used the mere number of **scheduled DL subframes per frame** as a *different* decision criterion for the selection of the "PUCCH format". Conversely, the patent in suit based the selection of PUCCH format on **how many DL subframes corresponded to an UL subframe** (i.e. features 1.I and 1.H). These criteria were neither the same nor corresponding to each other. For instance, in "UL/DL configuration 0" there were generally four PDSCH/DL subframe transmissions at DL/S subframes 0, 1, 5 and 6 in frame (N+1). According to the patent in suit, a single DL subframe corresponded to a *particular* UL subframe. Hence, **PUCCH format 1a/1b** would be selected, as per feature 1.I. Conversely, in "Option 1" of D2, this situation corresponded to the "Else"-case and thus **PUCCH format 3** would eventually be chosen. Besides, in "Option 1" of D2, the UE - not the BS - selected the PUCCH format (see page 8, first line; board's emphasis: "*Based on this, the detailed UE procedure is as follows*") on the basis of the PDCCH and PDSCH actually received (see page 6, point 4: "*If no PDCCH corresponding to PDSCH on SCells is received, and PDSCH is received on the PCell, Rel-8 PUCCH 1a/1b resource is used*").

- 1.1.3 The respondent argued that claim 1 did not require a correspondence "per frame", as the appellant suggested. Rather, a "per subframe" correspondence was sufficient.

Such correspondence was indeed already present in "Option 1" of D2. The check whether "there is a single PDSCH with the corresponding PDCCH of DAI= '00' on PCell only" was sufficient to disclose **feature 1.I**. And since in "Option 1", "Rel-10 PUCCH format 3 is used for other cases", document D2 necessarily disclosed **feature 1.H**, too. "Option 1" of D2 even disclosed the appellant's narrower interpretation of claim 1, since the "DAI" field in Fig. 4 - being used as ACK/NACK Resource Indicator (ARI) - acted as a counter ("DAI=01", "DAI=02"). Such counter in fact established the correspondence between at least two DL subframes and a UL subframe. As regards the appellant's "counter-example" relying on "UL/DL configuration 0", the respondent pointed out that the criteria need not be exactly the same. Rather, it was sufficient that D2 disclosed something that fell within the subject-matter defined by the claim. As to the device involved in the PUCCH format decision, it was apparent that D2 - a standard-related document - necessarily implied that both BS and UE should be synchronised in order to correctly process the PUCCH format. In other words, the BS should necessarily make the same format selection as the UE.

1.1.4 In that regard, the board notes the following:

(a) Features 1.H and 1.I

Features 1.H and 1.I merely describe - rather loosely and non-exhaustively - situations in which the "format determining unit" determines that the PUCCH format is either PUCCH format 3 ("when at least two DL subframes correspond to the UL subframe" in feature 1.H) or PUCCH formats 1a/1b ("when only a single DL subframe corresponds to the

UL subframe" in feature 1.I). But, contrary to the embodiments of the patent in suit (see e.g. S1815 in Fig. 18: "ARE AT LEAST TWO DL SUBFRAMES LINKED TO SINGLE UL SUBFRAME?"), the "format determining unit" of granted claim 1 does not include any "decision criterion" to be evaluated, let alone one evaluating "how many DL subframes correspond to an UL subframe", as the appellant suggests. In other words, while feature 1.H and 1.I may describe some possible outcomes of a determination, granted claim 1 as a whole does not establish which specific evaluation should lead to those outcomes. Thus, the board agrees with the respondent that the selections disclosed in "Option 1" of D2 would still fall within the subject-matter generally defined by claim 1.

(b) Determination at the UE vs determination at the BS

Claim 1 as granted is directed to a BS comprising, *inter alia*, a "format determining unit" adapted to determine a "PUCCH format" of a "UL subframe" (i.e. feature 1.B). Document D2 does not mention a BS or any other element that could be assimilated to a BS. On the contrary, D2 explicitly recites, in the context of "Option 1", that "the detailed UE procedure is as follows" (see page 8, first line). However plausible the scenario described by the respondent might be, i.e. one in which the BS and the UE perform the *same* determination on the grounds that the PUCCH format selected by the UE is normally not signalled to the BS for signalling overhead reasons, the board is not convinced that this should be the *only* technical teaching to be necessarily derived from D2. In fact, other alternatives, like the UE selecting autonomously

among PUCCH formats previously configured by the BS are technically just as meaningful, if not more. Indeed, the UE of the system of D2 could well determine the PUCCH format for frame N+1 on the basis of the ACK/NACKs required for the DL subframes received in frame N or earlier.

1.2 Since there is no reason to deduce that D2 should disclose a BS comprising the claimed "format determining unit" according to features 1.B, 1.H and 1.I, the subject-matter of granted claim 1 must be considered new in view of D2.

1.3 *Admittance of a new argument*

1.3.1 During the oral proceedings before the board, the appellant submitted - for the first time in appeal proceedings - that document D2 could not be relevant to the novelty assessment of the subject-matter of claim 1 because, in the scheme of D2, the determination of the PUCCH format was done at the UE, whereas granted claim 1 concerned the BS.

1.3.2 The respondent requested that this fresh argument not be admitted into the appeal proceedings, essentially because it was raised at a very late stage and could, and should, have been submitted earlier, already in the opposition proceedings. The board acknowledges these considerations.

1.3.3 The appellant's submission was without doubt new. Admittedly, it does not introduce any new *facts* or new *evidence*. It is simply a new *argument* concerning the interpretation of prior-art document D2. However, Article 12(3) RPBA makes clear that *arguments* also form part of a party's case, and that a late-filed argument

can therefore formally qualify as an "amendment" under Article 13(2) RPBA, the admission of which being at the board's discretion.

- 1.3.4 The board is aware that some case law of the Boards of Appeal actually denied that the EPC confers on the Boards any discretion to disregard late arguments, since Article 114(2) EPC refers only to *facts* and *evidence* (see e.g. **T 1914/12** and the decisions cited in Reasons 7.2.2). Moreover, in case **T 1617/23**, the competent board concurred with this view but introduced certain reservations (see Reasons 1.6 to 1.9). Whether or not this jurisprudence is persuasive does not need to be decided in the present case.
- 1.3.5 Indeed, even on the assumption that the board had indeed discretion not to admit a late-filed argument, the board considers that there would be no justification to exercise it here. Once the parties have submitted the relevant claim requests and documents and presented their arguments on them, the board must resolve a number of legal issues falling under its judicial responsibility. These include the interpretation of the claims, the construction of the relevant (prior-art) documents and the proper assessment of their disclosure from the perspective of a skilled person in the respective field.
- 1.3.6 If the board becomes aware, even at a late stage, that its previous interpretation of a (prior-art) document or a claim from the perspective of the skilled person, or its understanding of a prior-art technical teaching, was wrong, in the present board's view, it has a duty to correct that error. This applies irrespective of whether the new understanding arises from the board's own analysis or from a party's new submission.

- 1.3.7 In the present case, to disregard the appellant's argument and keep its original understanding of the scheme disclosed in D2 would force the board to base its decision on an interpretation which it considers erroneous. The procedural framework of the appeal proceedings aims to secure efficient and fair proceedings, but also to guarantee that the decisions, based on the facts and evidence adduced, are substantively correct. In other words, a (technically) correct interpretation of a prior-art document has taken precedence over formal or procedural considerations here. For this reason, once convinced by the appellant's submission, the board adopted it in its assessment of the present case.
- 1.4 In view of the above, the "new argument" was admitted into the appeal proceedings and the respondent's request in that regard is to be rejected.
2. *Remittal of the case (Article 111(1) EPC)*
- 2.1 It follows from the above that the subject-matter of claim 1 of the main request is new (Article 54 EPC) in view of document D2. In the decision under appeal, the opposition division found the main request not allowable only due to lack of novelty of the subject-matter of **claim 1 as granted** in view of D2.
- 2.2 However, during the opposition proceedings, further inventive-step objections were raised against the main request in view of document D2 as well as a further novelty objections in view of a different prior-art document. The opposition division did not decide on any of those issues though.

- 2.3 The respondent requested that the case not be remitted to the opposition division and that the appeal proceedings be continued in writing instead. In support of this request, it argued that, at any event, the granted claims also included an independent **claim 3** directed to the UE and that during the opposition and appeal proceedings, the respondent had expressly argued that the objections against granted claim 1 would correspondingly apply to claim 3 as granted.
- 2.4 The respondent's argumentation is not convincing. Granted claim 3 does not simply comprise the same units of granted claim 1 (or corresponding ones) placed at the UE. In fact, the BS of **claim 1** comprises a "format determining unit", a "transceiving unit", a "resource allocating unit" and a "controlling unit", whereas the UE of **claim 3** features "a transceiving unit", a "resource allocating unit" and a "controlling unit". Most notably, the "format determining unit", i.e. the unit to which the controversial **features 1.H and 1.I** relate, is absent from granted claim 3. In summary, the board considers that the novelty objections against granted claim 1 cannot be simply applied *mutatis mutandis* against granted claim 3. Those claims are simply related to different entities. Rather, the issue of novelty of the subject-matter of granted claim 3 should be examined on its own merits. The opposition division did neither perform such examination nor decide on the issue.
- 2.5 Under the present circumstances, it is not appropriate to take a final decision on novelty (Article 54 EPC) and inventive step (Article 56 EPC). This represents a "special reason" within the meaning of Article 11 RPBA for remittal of the case. Consequently, the board remits the case to the opposition division for further

prosecution under Article 111(1) EPC, on the basis of the main request (patent as granted).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chair:



B. Brückner

K. Bengi-Akyürek

Decision electronically authenticated