Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 20 September 2023

Case Number: T 1441/21 - 3.5.05

Application Number: 13762658.6

Publication Number: 3022059

IPC: H04L9/32, G06F21/44, B41J2/175, H04W12/06, H04L29/06

Language of the proceedings: EN

Title of invention:
SUPPLY AUTHENTICATION VIA TIMING CHALLENGE RESPONSE

Patent Proprietor:
Hewlett-Packard Development Company, L.P.

Opponent:
Czerwonka, Alfred

Headword:
SUPPLY AUTHENTICATION VIA TIMING CHALLENGE RESPONSE / Hewlett-Packard

Relevant legal provisions:
EPC Art. 123(2)
RPBA 2020 Art. 12(2), 12(4), 12(6)

Keyword:

Amendments - extension beyond the content of the application as filed (yes)
primary object of appeal proceedings to review decision - appeal case directed to requests on which decision was based (no)
Late-filed request - should have been submitted in first-instance proceedings (yes)
Amendment to case - suitability of amendment to address issues (no)

Europäisches Patentamt
European Patent Office
Office européen des brevets

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
Fax +49 (0)89 2399-4465

Case Number: T 1441/21 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 20 September 2023

Appellant: (Patent Proprietor)	Hewlett-Packard Development Company, L.P. 10300 Energy Drive Spring TX 77389 (US)
Representative:	Haseltine Lake Kempner LLP One Portwall Square Portwall Lane Bristol BS1 6BH (GB)
Respondent: (Opponent)	Czerwonka, Alfred Ahornweg 11 31275 Lehrte (DE)
Representative:	Henkel & Partner mbB Patentanwaltskanzlei, Rechtsanwaltskanzlei Maximiliansplatz 21 80333 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 June 2021 concerning maintenance of the European Patent No. 3022059 in amended form.**

Composition of the Board:

Chair	A. Ritzka
Members:	N. H. Uhlmann
	K. Kerber-Zubrzycka

Summary of Facts and Submissions

I. The appellant-patent proprietor appealed against the opposition division's interlocutory decision to maintain European patent No. 3 022 059 in amended form according to what was then auxiliary request 2.

II. In its statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and the patent be maintained in accordance with the main request underlying the contested decision, or with auxiliary requests 1 to 5 as filed with the statement of grounds of appeal. It furthermore requested that the appeal proceedings be accelerated.

III. The respondent-opponent did not file any reply to the appeal and indicated that it would not participate in the oral proceedings.

IV. With a letter dated 1 June 2022 the appellant submitted amended description paragraphs.

V. In a communication under Article 15(1) RPBA, the board set out its provisional opinion on the case.

VI. The appellant submitted further arguments by letter dated 31 August 2023.

VII. At the oral proceedings the allowability of the requests on file was discussed with the appellant.

VIII. Final requests of the parties

The appellant (patent proprietor) requested that the decision under appeal be set aside and a patent be granted based on the main request on which the decision

under appeal was based or on one of auxiliary requests 1 to 5 filed with the statement setting out the grounds of appeal.

The respondent (opponent) did not reply to the appeal and therefore did not submit any requests.

IX. Claim 1 of the main request reads

"A print supply cartridge (104) characterized by a microcontroller (106) to receive a timing challenge (128) and enable authentication of the cartridge by providing a challenge response (130) in a challenge response time (131) that falls within an expected time window, further comprising dedicated hardware logic on the microcontroller to perform a mathematical calculation in response to the timing challenge, wherein the calculation yields the challenge response within the expected time window, and

further comprising characterization data stored on the microcontroller that enables an expected time window for completing the challenge response to be determined, for a given calculation count that specifies a number of times to perform a mathematical calculation from the timing challenge."

X. Claim 1 of auxiliary request 1 is based on claim 1 of the main request. The last "further comprising" clause is replaced by the following wording:

"further comprising characterization data stored on the microcontroller to determine, from the characterization

data, an expected time window for completing the challenge response,

wherein, through the characterization data, the expected time window is associated with a calculation count that specifies a number of times to perform a mathematical calculation from the timing challenge."

XI. Claim 1 of auxiliary request 2 is based on claim 1 of auxiliary request 1. The verb "to determine" in the last "further comprising" clause is replaced by "to retrieve".

XII. Claim 1 of auxiliary request 3 is based on claim 1 of the main request. The last "further comprising" clause is replaced by the following wording:

"further comprising characterization data stored on the microcontroller, to determine, from the characterization data, an expected time window for a given calculation count, the characterization data associating the expected time window for completing the challenge response with the calculation count that specifies a number of times to perform a mathematical calculation from the timing challenge."

XIII. Claim 1 of auxiliary request 4 is based on claim 1 of auxiliary request 1 and includes the following additional wording:

"the characterization data retrievable and accessible by an authentication algorithm on the host device for the authentication algorithm to determine whether the

challenge response and the challenge response time are correct and expected."

XIV. Claim 1 of auxiliary request 5 is based on claim 1 of the main request. The last "further comprising" clause is replaced by the following wording:

"further comprising characterization data stored on the microcontroller that includes an expected time window for completing the challenge response

wherein the expected time window is associated with a calculation count that specifies a number of times to perform a mathematical calculation from the timing challenge."

Reasons for the Decision

1. The patent in suit pertains to a print supply cartridge comprising a microcontroller and dedicated hardware logic which is adapted to perform mathematical calculations according to a received timing challenge. The result of the calculations and the time taken are evaluated by a host device and used to authenticate the cartridge. The number of times the calculations are to be carried out and the expected time windows are included in characterisation data stored on the cartridge.

Main request

2. Amendments

The opposition division decided that claim 1 did not meet the requirements of Article 123(2) EPC. The board

confirms the objection set out in section 3.1 of the decision under appeal.

2.1 Claim 1 as amended states that the characterization data "enables **an expected time window** for completing the challenge response to be determined for a **given calculation count**" (emphasis by the board).

Claims 3 and 4 as filed refer to a plurality of time windows: "expected time windows" and "each time windows".

The appellant submitted that the formulation "an expected time window" meant "one or more time windows" and not "only one time window". The board agrees, but considers that there is no basis in the application as filed for "one time window".

2.2 The appellant referred to paragraph 23, in particular the penultimate sentence, and to a number of other paragraphs as a basis for the wording "an expected time window".

2.3 The board agrees that this sentence discloses that an expected time window can be determined for a given calculation count. This determination is disclosed only in combination with a mathematical relation, i.e. a formula. However, claim 1 is not limited to any mathematical relation. Hence the example given in the last 5 lines of paragraph 23 cannot form a basis for the current claim's wording.

2.4 The board notes that the teaching in the penultimate sentence in the singular "an expected time" cannot be applied to the disclosure in claims 3 and 4 as filed and the part of paragraph 23 in lines 2 to 10 on page 10. As explained above, the determination of an expected time is based on a formula. It is generally known that different expected times (y in paragraph 23)

can be calculated using one and the same formula, based on different calculation counts (x). This corresponds to the "time windows" in the plural, as disclosed in claims 3 and 4 as filed and the part of paragraph 23 in lines 2 to 10 on page 10.

2.5 Paragraphs 12 to 14, 17, 19 to 22, 31, 33 and 34, to which the appellant referred, do not disclose a single expected time window **in combination with** the characterisation data. The board notes that clearly only **one** calculation count and **one** expected time window play a part **during the execution** of **one** timing challenge. However, according to claims 3 and 4 as filed and paragraph 23, the characterisation data relates to **time windows**, each associated with a calculation count. Furthermore, according to claim 1 the characterisation data **is stored** on the microcontroller. Finally, paragraph 32 confirms that "*the characterization data includes expected **time windows** for receiving a challenge response from the supply device that are associated with **different calculation count values***" (emphasis by the board).

2.6 The board notes that amendments can only be made within the limits of what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the application documents as filed. This is the standard to be applied when compliance with Article 123(2) EPC is to be assessed: it cannot be replaced by the so-called essentiality test (see the Case Law of the Boards of Appeal CLBA, 10th edition, 2022, II.E.1.3.1 and the case law cited therein). In the present case, it is not directly and unambiguously derivable that **the characterisation data enables one expected time window to be determined**.

2.7 The appellant argued that a skilled person would clearly and unambiguously derive, using common general knowledge, that, if a third party "counterfeit" were to fabricate its own dedicated hardware logic to meet the time requirements for one calculation count, after that it could be presumed to be of little extra effort to meet response times for other calculation counts (e.g. as indicated in a table or by a formula). The skilled person would understand that the provision of various different counts and/or time windows in the characterization data on the cartridge did not affect the difficulty of meeting the timing challenge. What was taught in the overall disclosure was that the response time, or speed, of the dedicated logic to complete the particular mathematical calculation that iterates a number of times as determined by the calculation count was difficult for standard microcontrollers to meet, and that the quotient "time vs count" could be stored on the microcontroller as characterization data to eliminate the need for reference logic and provide forward compatibility. That was the main teaching that would be derived by the skilled person.

The board agrees that the person skilled in the art would understand from the overall disclosure of the application as filed that the main difficulty for a third party striving to fabricate a print supply cartridge lies in providing a dedicated hardware logic which is able to meet the time requirements, i.e. to perform the mathematical calculation sufficiently fast. It is also correct that the information "time vs count" could be stored as characterization data on the microcontroller.

2.8 However, with regard to the content of the characterization data stored on the microcontroller, the application as filed discloses two alternatives:

- expected time windows and corresponding calculation count values (claims 3 and 4 as filed; paragraph 23 on page 10, lines 2 to 10; paragraph 32, last three lines on page 16) or

- mathematical relation (paragraph 23 on page 10, lines 10 to 13).

None of these alternatives provides a basis for deriving, directly and unambiguously, characterization data which enables a single expected time window to be determined for a given calculation count value.

Paragraph 22 teaches that each timing challenge may have different values for, *inter alia*, the calculation count. This disclosure confirms that there is no basis for a single calculation count and a single expected time window.

The appellant stated that according to paragraph 22 the calculation count "may" have different values, which implied that one calculation count value was not excluded. However, this paragraph also teaches that the calculation count affects the challenge response time by **varying the number of iterations** of the mathematical calculation. This teaching affirms that one calculation count value is not disclosed.

2.9 In its letter of 31 August 2023, page 4, second full paragraph, the appellant quoted in part a sentence from paragraph 23 of the application as filed "for a given

calculation count value, x, an expected time, y, can be determined", thereby omitting the preceding word "thus". The adverb "thus" clearly indicates a logical conclusion which follows from the previous sentence which defines the mathematical relation. Furthermore, the variables "x" and "y" evidently specifically refer to the corresponding variables in the previous sentence. Accordingly, "an expected time" refers specifically to the mathematical relation and cannot be seen to refer to all the other examples in paragraph 23.

2.10 It is conceivable that a skilled person could come up with the idea that characterization data enabling the determination of a single expected time window could be sufficient to make sure that the mathematical calculations are performed sufficiently fast. However, the application as filed explicitly discloses either expected time windows or a mathematical relation. It would be contrary to the overarching need for legal certainty for third parties if the appellant was allowed to claim protection for subject-matter which the skilled person could come up with, based on their common general knowledge, but which is neither disclosed nor derivable from the content of the application as filed.

The board notes in this regard that the common general knowledge does not supplement the disclosure as filed, but may be used only to understand and interpret the disclosure by the skilled person.

2.11 The appellant argued that claim 1 as amended "provides a complete solution to a technical problem unambiguously derivable from the application", referring to T 284/94. It suggested that the following

two problems were unambiguously derivable from the application as filed:

(i) to provide for an alternative to host-side reference logic (see paragraphs 23 and 24);

(ii) to be able, in time, to upgrade "dedicated hardware logics" to higher calculation speed characteristics while connecting to the same host.

However, these are not problems which the invention purports to address. The problem set out in the description paragraphs 10 and 11 is to provide robust authentication of replaceable supply devices. The alleged problem (i) is not a problem solved by the invention but a reference to a second, alternative, solution to the problem in paragraph 11, see in this regard paragraph 32, third-last sentence.

The alleged problem (ii) is not set out in the description and is not unambiguously derivable. The explanation of the appellant in the grounds of appeal (page 7, third paragraph) is of a speculative nature. For example, it is conceivable that mass-produced devices, such as the ink cartridges, are not necessarily redesigned with an upgraded controller.

2.12 The appellant made the repeated criticism that the board allegedly performed "semantic" or "linguistic" analysis only and disregarded the technical teaching of the application as a whole.

In the board's view, semantic and linguistic analysis is important and proper, because it pertains to the meaning of the text of the application as submitted by the applicant on the filing date. It goes without saying that the technical content of the application as filed, from the point of view of the skilled person, was addressed in the above points.

2.13 For these reasons, the board confirms the finding in the decision under appeal that claim 1 of the main request does not meet the requirements of Article 123(2) EPC. Hence the main request is not allowable.

Auxiliary requests 1 to 5

3. Admission

3.1 Auxiliary requests 1 to 5 were all filed with the statement of grounds of appeal. Hence they amount to an amendment of the appellant's appeal case within the meaning of Article 12(4) RPBA.

3.2 The appellant argued that the auxiliary requests were filed to address the objection in point 3.2 of the decision under appeal, that this objection had been raised for the first time at the oral proceedings and that it could not have reacted earlier to this objection.

3.3 The board accepts that this objection had been raised for the first time at the oral proceedings. However, it is apparent from the minutes of the oral proceedings that the appellant had been able to react to it and that it had done so by

- submitting arguments (see points 10 and 11 of the minutes);

- submitting an amended auxiliary request (new first auxiliary request, point 27) and

- renumbering previously-filed auxiliary requests (point 37).

After the renumbering, the opposition division came to the conclusion that the new auxiliary request 2 (previous auxiliary request 8) met the requirements of the EPC.

From these observations, it follows that at the first-instance oral proceedings the appellant was able to react in a way which it deliberately chose. Moreover, it eventually succeeded in convincing the opposition division. If it had wanted to have different claim requests examined by the opposition division, and the ensuing decision reviewed by a board of appeal, then it should have submitted them during the oral proceedings.

According to Article 12(2) RPBA, the primary object of the appeal proceedings is to review the decision under appeal in a judicial manner. The appeal proceedings do not form a continuation of the first-instance proceedings: thus on appeal there is no possibility for the appellant to **try another way** of reacting to the same objection, in particular not by submitting amended auxiliary requests which had never been submitted during the opposition proceedings. It is also noted that none of auxiliary requests 1 to 5 corresponds to

any of the requests submitted in the course of the opposition proceedings.

3.4 No circumstances of the appeal case justify admittance of auxiliary requests 1 to 5.

3.5 For these reasons, the board decided not to admit auxiliary requests 1 to 5 into the appeal proceedings, under Article 12(6) RPBA.

3.6 Furthermore, it is noted that claim 1 of these requests is not suitable to address the problems raised in point 3.1 of the first-instance decision and confirmed in point 2. above (Article 12(4) RPBA).

Conclusion

In view of the above reasons, none of the appellant's requests is allowable. Thus the appeal must be dismissed. The interlocutory decision of the opposition division is thereby confirmed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz-Wein A. Ritzka

Decision electronically authenticated