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**Datasheet for the decision  
of 21 June 2023**

**Case Number:** T 1127/21 - 3.3.05

**Application Number:** 15704906.5

**Publication Number:** 3107658

**IPC:** B01L7/00

**Language of the proceedings:** EN

**Title of invention:**

APPARATUSES, SYSTEMS AND METHODS FOR PROVIDING SCALABLE  
THERMAL CYCLERS AND ISOLATING THERMOELECTRIC DEVICES

**Patent Proprietor:**

Life Technologies Corporation

**Opponent:**

Eppendorf SE

**Headword:**

Thermal cyclers/Life Technologies

**Relevant legal provisions:**

EPC Art. 100(c), 123(2), 123(3)  
RPBA 2020 Art. 13(2)

**Keyword:**

Amendments - allowable (no)

Amendment after summons - exceptional circumstances (no)

**Decisions cited:**

T 0995/18, T 2843/19

**Catchword:**



**Beschwerdekammern**

**Boards of Appeal**

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Case Number: T 1127/21 - 3.3.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.05**  
**of 21 June 2023**

**Appellant:** Life Technologies Corporation  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 25 May 2021  
revoking European patent No. 3107658 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairwoman** O. Loizou  
**Members:** G. Glod  
S. Besselmann

## Summary of Facts and Submissions

- I. The appellant's (patent proprietor's) appeal lies from the opposition division's decision to revoke European patent No. EP 3 107 658 B1. The main request and then auxiliary requests 3 to 35 were found not to meet the requirements of Article 123(2) EPC, while then auxiliary requests 1 and 2 were found not to meet the requirements of Article 123(2) and (3) EPC and Article 84 EPC.
- II. With the statement of grounds of appeal the appellant filed auxiliary requests 1 to 35, with auxiliary requests 1 to 33 corresponding to auxiliary requests 3 to 35 considered in the impugned decision and auxiliary requests 34 and 35 corresponding to auxiliary requests 1 and 2 considered in the impugned decision.
- III. Auxiliary request 36 was filed in reply to the board's communication pursuant to Article 15(1) RPBA 2020.
- IV. Claim 1 of the patent as granted (main request) reads as follows:

*"1. A thermal cyclers system (300, 400) comprising:  
a sample block (310) comprising two or more block segments (410a-410c), the sample block having a first surface and an opposing second surface, wherein the first surface is configured for receiving a plurality of reaction vessels; and two or more thermal modules, each thermal module comprising,  
a thermoelectric device operably coupled to the second surface of the sample block (310), and a thermal control unit (420a-420c) comprising a computer processing unit, an electrical current source (330) and*

*an electrical interface portion configured to connect the electrical current source (330) to the thermoelectric device by way of an electrical cable wherein the thermal control unit (420a-420c) is located away from the thermoelectric device."*

Claim 1 of auxiliary request 1 includes the following amendments (underlined):

*"1. [...] plurality of reaction vessels; a main controller (350) including an interface to the environment external to the thermal cyclor system; and two or more thermal modules [...]"*

Compared with the main request, claim 1 of auxiliary request 2 includes the following amendments (underlined and struck-through):

*"1. [...] a sample block (310) ~~comprising~~ configured in two or more block segments [...]"*

Compared with the main request, claim 1 of auxiliary request 3 includes the following amendments (underlined):

*"1. [...] a thermal control unit (420a-420c) comprising a computer processing unit, an interface section (340) connected to one or more thermal sensors coupled to the sample block (310) through sensor interface (342), an electrical current source (330) [...]"*

Claim 1 of auxiliary request 4 is identical to claim 1 of the main request.

Claim 1 of auxiliary request 5 includes the amendments of auxiliary requests 1 and 2.

Claim 1 of auxiliary request 6 includes the amendments of auxiliary requests 1 to 3.

Compared with the main request, claim 1 of auxiliary request 7 includes the following amendments (underlined) at the end:

*"1. [...] the thermoelectric device and located in a different plane than the thermoelectric device."*

Compared with the main request, claim 1 of auxiliary request 8 includes the following amendments (underlined) at the end:

*"1. [...] device, wherein each thermal module is configured to provide independent thermal control of the block segment (410a-410c) of the sample block (310) in thermal contact with the thermoelectric device."*

Compared with auxiliary request 8, claim 1 of auxiliary request 9 includes the following amendments (underlined) at the end:

*"1. [...] device and the independent thermal control includes control of each thermoelectric device to a different temperature for a different period of time."*

Compared with auxiliary requests 8 and 9, respectively, claim 1 of auxiliary requests 10 and 11 includes the following amendments (underlined):

*"1. [...] of reaction vessels and wherein block segments (410a-410c) are separated from each other to prevent the use of a standard microtiter plate from*

*being accommodated across all segments; and two or more thermal modules [...]*"

Compared with the main request, claim 1 of auxiliary request 12 includes the amendments of auxiliary requests 7 and 8.

Compared with the main request, claim 1 of auxiliary request 13 includes the amendments of auxiliary requests 7 and 9.

Compared with the main request, claim 1 of auxiliary request 14 includes the amendments of auxiliary requests 7, 8 and 10.

Compared with the main request, claim 1 of auxiliary request 15 includes the amendments of auxiliary requests 7, 9 and 10.

Compared with the main request, claim 1 of auxiliary request 16 includes the following amendments (underlined and struck-through):

*"1. [...] a sample block (310) ~~comprising~~ configured in two or more block segments (410a-410c), the sample block having a first surface and an opposing second surface, wherein the first surface is configured for receiving a plurality of reaction vessels; a main controller (350) including an interface to the environment external to the thermal cycler system; and two or more thermal [...] located away from the thermoelectric device and located in a different plane than the thermoelectric device."*

Compared with auxiliary request 16, auxiliary request 17 includes the amendment of auxiliary request 8 at the

end of claim 1 instead of the amendment of auxiliary request 7.

Compared with auxiliary request 17, auxiliary request 18 further includes the amendment of auxiliary request 9 at the end of claim 1.

Compared with auxiliary request 17, auxiliary request 19 further includes the amendment of auxiliary request 10 in claim 1.

Compared with auxiliary request 18, auxiliary request 20 further includes the amendment of auxiliary request 10 in claim 1.

Compared with auxiliary request 17, auxiliary request 21 further includes the amendment of auxiliary request 7 in claim 1.

Compared with auxiliary request 18, auxiliary request 22 further includes the amendment of auxiliary request 7 in claim 1.

Compared with the main request, claim 1 of auxiliary request 23 includes the following amendments (underlined and struck-through):

*"1. [...] a sample block (310) ~~comprising~~ configured in two or more block segments (410a-410c), the sample block having a first surface and an opposing second surface, wherein the first surface is configured for receiving a plurality of reaction vessels and wherein block segments (410a-410c) are separated from each other to prevent the use of a standard microtiter plate from being accommodated across all segments; a main controller (350) including an interface to the*



environment external to the thermal cycler system; and [...] is located away from the thermoelectric device and located in a different plane than the thermoelectric device, wherein each thermal module is configured to provide independent thermal control of the block segment (410a-410c) of the sample block (310) in thermal contact with the thermoelectric device."

Compared with auxiliary request 23, auxiliary request 24 further includes the amendment of auxiliary request 9 in claim 1.

Compared with auxiliary request 16, auxiliary request 25 includes the amendment of auxiliary request 3 in claim 1.

Compared with auxiliary request 17, auxiliary request 26 includes the amendment of auxiliary request 3 in claim 1.

Compared with auxiliary request 26, auxiliary request 27 includes the amendment of auxiliary request 9 in claim 1.

Compared with auxiliary request 19, auxiliary request 28 includes the amendment of auxiliary request 3 in claim 1.

Compared with auxiliary request 28, auxiliary request 29 includes the amendment of auxiliary request 9 in claim 1.

Compared with auxiliary request 16, auxiliary request 30 includes the amendments of auxiliary requests 3 and 8 in claim 1.

Compared with auxiliary request 30, auxiliary request 31 includes the amendment of auxiliary request 9 in claim 1.

Compared with auxiliary request 23, auxiliary request 32 includes the amendment of auxiliary request 3 in claim 1.

Compared with auxiliary request 32, auxiliary request 33 includes the amendment of auxiliary request 9 in claim 1.

Compared with the main request, claim 1 of auxiliary request 34 includes the following amendments (underlined and struck-through):

*"1. [...] a sample block (310) comprising two or more ~~block segments~~ regions (410a-410c), the sample block having a first surface and an opposing second surface, [...] is located away from the thermoelectric device, wherein each thermal module is configured to provide independent thermal control of the region (410a-410c) of the sample block (310) in thermal contact with the thermoelectric device."*

Compared with auxiliary request 34, claim 1 of auxiliary request 35 includes the following feature at the end:

*"1. [...] and wherein the thermal control unit (420a-420c) is located in a different plane than the sample block (310) and the thermoelectric device."*

Compared with the main request, claim 1 of auxiliary request 36 includes the following amendment (underlined) at the end:

"1. [...] is located away from the thermoelectric device; wherein each block segment (410a-410c) is correlated to a dedicated thermal control unit."

V. The parties' relevant arguments with respect to the main request and auxiliary requests 1 to 35 concerned Article 123(2) EPC. It was debated whether the subject-matter of claim 1 was directly and unambiguously derivable from claim 6 in combination with the description as filed, in particular when considering paragraphs [0050] to [0053]. In addition, the appellant argued that auxiliary requests 34 and 35 met the requirements of Article 123(3) EPC since the expressions "regions" and "block segments" had the same meaning in the context of claim 1. The appellant also considered that auxiliary request 36 should be admitted into the proceedings. Exceptional circumstances were present because the board's communication had raised a new objection.

VI. At the end of the oral proceedings of 21 June 2023 the requests were as follows.

The appellant requested that the impugned decision be set aside and that the patent be maintained as granted (main request), alternatively that the patent be maintained in amended form on the basis of one of auxiliary requests 1 to 35 filed with the statement of grounds of appeal or auxiliary request 36 filed on 6 April 2023.

The respondent requested that the appeal be dismissed.

## Reasons for the Decision

### Main request (patent as granted)

#### 1. Article 100(c) EPC

The board sees no reason to deviate from the opposition division's conclusion for the following reasons.

The appellant argued that the subject-matter of claim 1 was based on claim 6 in combination with paragraphs [0050] to [0053] of the application as filed.

1.1 The only difference between claim 1 as granted and claim 6 of the application as filed is "comprising two or more block segments (410a-410c)" in relation to "a sample block (310)".

1.2 When reading claim 6 as filed the skilled person understands that the thermal cyclers system comprises firstly a sample block and secondly two or more thermal modules. These thermal modules are coupled to the sample block via the thermoelectric device, which is part of the thermal modules. Figure 4 is not considered to be a representation of claim 6; it does not contain thermal modules, and claim 6 is silent about the main controller 450, which is part of Figure 6. Furthermore, according to paragraph [0050] the thermoelectric device and the thermal sensor can be part of the block segment, while according to claim 6 as filed the thermoelectric device is part of a thermal module.

Claim 13 as filed specifies that each thermal module provides independent thermal control of the region of the sample block in thermal contact with the thermoelectric device. In that context the "region" is

understood as an area of the block contacted by the thermoelectric device. This means that the sample block can have many regions, i.e. many points of contact with the thermoelectric device.

A different understanding of the wording "region" is not apparent from the description as filed, which simply lacks any definition of the expression "region".

- 1.3 Claim 1 as granted includes the wording "block segments". Paragraph [0050] of the application as filed discloses: *"In some embodiments thermal block 310 may be configured in multiple block segments. Each block segment can include a thermoelectric device and a thermal sensor. An instrument, therefore, can be constructed of more than one block segment with each block segment correlated to a dedicated thermal control unit. Such an instrument is shown in Fig. 4."*

It is evident from this that the thermal block referred to is made up of multiple block segments which can be controlled independently since each block segment is correlated to a dedicated thermal control unit. In other words there is not just one sample block but a multitude of block segments which together make up the thermal block. The skilled person would understand that "sample block" and "thermal block" are supposed to mean the same block in the current case. The block segments can either be adjacent to each other or separated from each other (paragraph [0053]). This means (to the skilled person) that each block segment is correlated to a dedicated thermal control unit, as shown in Figure 4, in the event that an instrument (or apparatus or system) comprises more than one block segment. From the disclosure it is also clear that the block segments are each, in this regard, independent of one another and

self-contained, meaning that this is not merely a structural part of a block without any technical significance.

The advantage of correlating one block segment to one thermal control unit is that an instrument can be modularized. This allows for easy upscaling and downsizing (paragraph [0052] of the application as filed), meaning that block segments can be added or removed. This confirms the understanding that the block segments are self-contained to such a degree that they themselves could be considered blocks. Therefore, they are definitely different from a "region", which is only a point of contact and is not self-contained.

Thus, it is directly and unambiguously derivable from the application as filed that the scalability of the system is directly linked to the presence of block segments, which requires one block segment to be correlated to one thermal control unit. Notwithstanding whether the combination of block segments with thermal modules as defined in claim 1 is directly and unambiguously derivable from the application as filed, the combination relating to one correlation between a block segment and a thermal control unit is neither implicitly nor explicitly present in claim 1, contravening Article 123(2) EPC.

- 1.4 The appellant's argument that claim 1 specified a correlation between each thermal control unit and each block segment through the thermoelectric device cannot be accepted. Claim 1 does not specify that a thermoelectric device is coupled to each block segment. The fact that the wording "two or more" is used for the block segments and the thermal modules does not imply that there is a one-to-one relationship between block

segments and thermal control units. It is also conceivable and technically meaningful that a module is coupled to more than one block segment or that a block segment is coupled to several modules. Claim 1 does not exclude such understanding.

In addition, the reference to thermal *modules* does not inevitably mean that a one-to-one relationship exists between block segments and thermal control units. Although paragraph [0052] of the application as filed discloses that an advantage of correlating one block segment to one thermal control unit is that an instrument can be *modularized*, said passage does not disclose thermal modules. It is doubtful that the skilled person would read this passage of the description into claim 1.

The appellant's position that the expression "two or more block segments" did not have any technical meaning is not accepted. As set out above it is very clear from the application as filed that the configuration in multiple block segments leads to better scalability and is technically significant.

Auxiliary requests 1 to 7

2. Article 123(2) EPC

The amendments included in claim 1 of auxiliary requests 1, 3, 6 and 7 further specify the cyclor system using additional features (auxiliary request 1: a main controller; auxiliary request 3: an interface section; auxiliary request 6: both features; auxiliary request 7: location of the thermal control unit). Claim 1 of auxiliary requests 2, 5 and 6 includes the replacement of "comprising" with "configured in", while

claim 1 of auxiliary request 4 is identical to claim 1 of the main request. None of these amendments is aimed at specifying that each block segment is correlated to a dedicated thermal control unit. Therefore this objection raised against the main request still applies to auxiliary requests 1 to 7.

These requests also fail for lack of compliance with Article 123(2) EPC.

Auxiliary request 8

3. Article 123(2) EPC

Claim 1 of auxiliary request 8 includes the features of claim 5 as granted. Said features specify that each thermal module is configured to provide independent thermal control of the block segment of the sample block in thermal contact with the thermoelectric device. However, contrary to the appellant's submissions, this feature does not provide any indication that a dedicated thermal control unit is correlated to a block segment. The thermal module could be configured such that either one thermal control unit controls several block segments or one block segment could be controlled by several thermal control units. In addition it is not indicated that *each* block segment is thermally controlled. The amendment thus does not imply that each block segment is correlated to a dedicated thermal control unit.

Therefore, the appellant's understanding of the claim is too restrictive. The amendment made does not overcome the objection raised against the main request.



This request is not allowable either under Article 123(2) EPC.

Auxiliary request 9

4. Article 123(2) EPC

Compared with claim 1 of auxiliary request 9, claim 1 of this request further includes the features of claim 6 as granted. These features specify that the independent thermal control includes controlling each thermoelectric device to a different temperature for a different period of time. This does not imply that each block segment has a thermal control unit. Therefore the deficiency of auxiliary request 8 still applies. This request also fails pursuant to Article 123(2) EPC.

Auxiliary requests 10 and 11

5. Article 123(2) EPC

Compared with claim 1 of auxiliary requests 8 and 9, claim 1 of these requests further includes the feature that the block segments are separated from each other. This feature does not relate to an indication that each block segment is correlated to a dedicated thermal control unit. Consequently the amendment made does not overcome the objection raised against the main request, and these requests are not allowable either under Article 123(2) EPC.

Auxiliary requests 12 to 33

6. Article 123(2) EPC

Claim 1 of these requests includes the features of auxiliary requests 1, 2, 3 and 7 to 11 in different combinations. Consequently these requests do not overcome the objection raised against the main request and also fail for lack of compliance with Article 123(2) EPC.

Auxiliary requests 34 and 35

7. Article 123(3) EPC

In claim 1 of these requests the wording "block segments" has been replaced by "regions". As indicated above (points 1.2 and 1.3), "region" and "block segment" do not have the same technical meaning. As indicated in claims 7 and 8 as granted and in paragraph [0049], block segments can be adjacent to each other or they can be separated from each other. They can be thermally independent.

The skilled person understands that they are self-contained physical entities that can function independently of each other.

"Regions" on the other hand are only parts of a physical entity and are not self-contained, as is evident from the use of this term in the patent. In particular paragraph [0052] mentions a "middle region of thermal block 510", and paragraphs [0064] and [0065] mention "region 632". In both cases the term "region" only relates to a part of a physical entity (here: the sample block) and is not self-contained.

This means that the change made in claim 1 of both requests leads to a thermal block that is no longer made up of self-contained elements, so the scope of

protection is extended by this amendment, contravening Article 123(3) EPC.

These requests are not allowable either.

Auxiliary request 36

8. Article 13(2) RPBA 2020

This request is not taken into account for the following reasons.

This request was first submitted after summons to oral proceedings had been issued and in reply to the board's communication pursuant to Article 15(1) RPBA. Article 13(2) RPBA 2020 applies.

Claim 1 includes the feature that each block segment is correlated to a dedicated thermal control unit. No such request has been on file before, so it is an amendment to the appellant's case. It has to be analysed whether exceptional circumstances exist that justify the request being taken into consideration.

As indicated in the communication pursuant to Article 15(1) RPBA 2020 (point 1), the communication is not an invitation to make further submissions (see also T 995/18, Reasons 1.4). Furthermore the communication does not necessarily raise all of the issues that may be decisive for the case (see point 1 of the communication). This means that the communication does not instruct the party on how to draft an allowable set of claims at this stage of the proceedings.

In the case in hand, the communication was based on the decision under appeal and the parties' submissions

during the appeal procedure. The question whether the subject-matter of claim 1 as granted derived directly and unambiguously from claim 6 as originally filed in conjunction with the disclosure in Figure 4 and in particular paragraph [0050] of the application as originally filed had been under debate throughout the opposition and opposition-appeal proceedings. This included the aspect in paragraph [0050] relating to each block segment being correlated to a dedicated thermal control unit, which was raised in the respondent's reply to the appeal, in particular the passages on page 10 (first paragraph), page 13 (fourth and fifth paragraphs) and page 19 (last paragraph) of the reply. Although the latter paragraph points to the relationship between the thermal control unit and the thermoelectric device, it clearly mentions paragraph [0050] (page 13, line 5), according to which the thermoelectric device is part of the block. Consequently, the correlation also applies to the block.

The objection concerning the relationship between a block segment and a dedicated thermal control was thus known to the appellant. There was no reason to wait for the board's communication to submit a further auxiliary request (see also T 2843/19, Reasons 3.3).

Furthermore, this was not the only aspect objected to under Article 123(2) EPC. Other aspects under debate were the combination of block segments with thermal modules and the presence of the main controller 450. Therefore, notwithstanding whether the amendments made in claim 1 of auxiliary request 36 overcome the objection under Article 123(2) EPC without giving rise to a new objection under Article 84 EPC, the board cannot discern any exceptional circumstances that would

justify taking auxiliary request 36 into account at this stage of the appeal proceedings.

Consequently this request is not admitted into the proceedings.

9. In summary, none of the appellant's requests is allowable.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed

The Registrar:

The Chairwoman:



C. Vodz

O. Loizou

Decision electronically authenticated