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**Datasheet for the decision
of 19 June 2018**

Case Number: T 1948/14 - 3.4.02

Application Number: 10007609.0

Publication Number: 2239558

IPC: G01N21/25, G01N21/64

Language of the proceedings: EN

Title of invention:

Device for determining concentration of spectrally distinguishable species in a biological sample

Applicant:

Life Technologies Corporation

Relevant legal provisions:

EPC Art. 54(1), 56, 76(1), 84, 123(2)

RPBA Art. 13(1), 13(3)

Keyword:

Clarity: main and first to ninth auxiliary requests (no)

Inventive step: tenth auxiliary request (no)

Admission of requests: eleventh auxiliary request (no)



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Case Number: T 1948/14 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 19 June 2018

Appellant: Life Technologies Corporation
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 18 March 2014
refusing European patent application No.
10007609.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: F. J. Narganes-Quijano
T. Karamanli

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the examining division refusing European patent application No. 10007609.0. The application was filed as a divisional application of European patent application No. 07019705.8 (in the following "the parent application"), which in turn was filed as a divisional application of European patent application No. 05705833.1 (in the following "the grandparent application").
- II. During the first-instance proceedings reference was made *inter alia* to the following documents:

D5: WO 03 098 279 A

D8: WO 03 031 947 A.

In its decision the examining division held with respect to the requests then on file that

- the claims of the main request and of the second and third auxiliary requests did not satisfy the requirements of Article 76(1) EPC, and

- claim 1 of the first auxiliary request satisfied the requirements of Article 76(1) EPC, but its subject-matter did not involve an inventive step (Article 56 EPC).

In an *obiter dictum* the examining division expressed its opinion that claim 1 of the second and the third auxiliary requests amended as to overcome the objections under Article 76(1) EPC would not appear to define patentable subject-matter under Article 56 EPC.

III. Oral proceedings before the board were held on 19 June 2018.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to the main request filed with the letter dated 16 May 2018, or, in the alternative, according to one of auxiliary requests 1 to 7 filed with the letter dated 16 May 2018, or according to one of auxiliary requests 8 and 9 filed as auxiliary requests 10 and 11 with the letter dated 16 May 2018, or according to one of auxiliary requests 10 "11:30 am" or 11 "2:00 pm" filed during the oral proceedings of 19 June 2018.

At the end of the oral proceedings the chairman announced the decision of the board.

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

"A fluorometry device (100), the device (100) comprising:

 a light source (105) adapted to provide a source beam;

 a plurality of sample wells;

 a plurality of optical devices (320a, 320b, 320c, 320d), each optical device comprising an excitation filter (250) adapted to filter the source beam, an emission filter (260) adapted to filter fluorescent emission light from the samples located in the plurality of sample wells, and a beamsplitter (245) to separate the source beam from the fluorescent emission light, wherein each of the plurality of optical devices (320a, 320b, 320c, 320d) is coupled to a same linearly movable platform (365), wherein for each optical device the excitation filter (250) is configured to ensure

that the excitation beam is closed [sic] to the characteristic excitation wavelength of a particular dye and the emission filter (260) is configured to ensure that the emission beam reaching a detector (125) is close to the characteristic emission wavelength of the particular dye;

the detector (125) adapted to simultaneously receive the fluorescent emission light emitted from the samples located in the plurality of sample wells; and

wherein the light source (105) and each of the plurality of optical devices (320a, 320b, 320c, 320d) are adapted to provide the source beam simultaneously to the plurality of sample wells, each of the plurality of optical devices (320a, 320b, 320c, 320d) is adapted to provide the fluorescent emission light from the samples located in the plurality of sample wells simultaneously to the detector (125), and the detector (125) is adapted to generate a data signal that includes information that is representative of the concentration of DNA in the samples located in the plurality of sample wells."

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

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that the last paragraph of claim 1 further reads:

"and wherein the light source (105) is a plurality of light emitting diodes and the fluorometry device (100) is configured to provide an analysis of DNA in the samples located in the plurality of sample wells at various stages of a polymerase chain reaction."

Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the following wording is inserted before the term "and" immediately preceding the last of the paragraphs of claim 1:

"a sample region (120) comprising vials to hold multiple samples located in the plurality of sample wells;

a platen that is configured to rest over the caps of the vials or directly over the vials and having an array of holes that are aligned with the vials;".

Claim 1 of auxiliary request 4 differs from claim 1 of the main request in that the following wording is inserted before the term "and" immediately preceding the last of the paragraphs of claim 1:

"a sample region (120) comprising vials to hold multiple samples located in the plurality of sample wells;

a platen that is configured to rest over the caps of the vials or directly over the vials and having an array of holes that are aligned with the vials;

a device to heat the platen;"

Claim 1 of auxiliary request 5 differs from claim 1 of the main request in that the fourth paragraph of the claim reading "a plurality of optical devices [...] close to the characteristic emission wavelength of the particular dye" further reads:

", and the beamsplitter (245) is configured to transmit wavelengths of light that are shorter than the excitation wavelength of the particular dye exposed to DNA at a particular stage of PCR".

Claim 1 of auxiliary request 6 differs from claim 1 of the main request in that the fourth paragraph of the claim reading "a plurality of optical devices [...] close to the characteristic emission wavelength of the particular dye" further reads:

", and the beamsplitter (245) is configured to transmit wavelengths of light that are shorter than the excitation wavelength of the particular dye exposed to DNA at a particular stage of PCR and to reflect wavelengths that are shorter than the characteristic wavelength of the particular dye exposed to DNA at the particular stage of PCR".

Claim 1 of auxiliary request 7 differs from claim 1 of the main request in that the following wording is inserted before the term "and" immediately preceding the last of the paragraphs of claim 1:

"a sample region (120) for holding multiple samples that are located in the plurality of sample wells, the sample region (120) comprising well lenses, each one of the well lenses being configured to be positioned above one sample of the multiple samples and to focus light onto the one sample;".

Claim 1 of auxiliary request 8 differs from claim 1 of the main request in that the fourth paragraph of the claim reading "a plurality of optical devices [...] close to the characteristic emission wavelength of the particular dye" further reads:

", and wherein the linearly movable platform (365) has a rectangular shape to accommodate the plurality of optical devices (320a, 320b, 320c, 320d) and is configured to be moved linearly to position different

optical devices (320a, 320b, 320c, 320d) to receive light from the light source (105)",

and in that the last paragraph of the claim further reads:

"based on particular dyes".

Claim 1 of auxiliary request 9 differs from claim 1 of the main request in that the fourth paragraph of the claim reading "a plurality of optical devices [...] close to the characteristic emission wavelength of the particular dye" further reads:

", and the beamsplitter (245) is configured to reflect wavelengths that are longer than the excitation wavelength of the particular dye exposed to DNA at a particular stage of PCR and that are shorter than the emission wavelength of the particular dye exposed to DNA at the particular stage of PCR, and wherein the linearly movable platform (365) has a rectangular shape to accommodate the plurality of optical devices (320a, 320b, 320c, 320d) and is configured to be moved linearly to position different optical devices (320a, 320b, 320c, 320d) to receive light from the light source (105)",

and in that the last paragraph of the claim further reads:

"based on particular dyes".

Claim 1 of auxiliary request 10 "11:30 am" reads as follows:

"A fluorometry device (100), the device (100) comprising:

a detector (125)

a light source (105) adapted to provide a source beam;

a plurality of sample wells;

a plurality of optical devices (320a, 320b, 320c, 320d), each optical device comprising an excitation filter (250) adapted to filter the source beam, an emission filter (260) adapted to filter fluorescent emission light from the samples located in the plurality of sample wells, and a beamsplitter (245) to separate the source beam from the fluorescent emission light, wherein each of the plurality of optical devices (320a, 320b, 320c, 320d) is coupled to a same linearly movable platform (365), wherein for each optical device the excitation filter (250) is configured to ensure that the excitation beam is close to the characteristic excitation wavelength of a particular dye and the emission filter (260) is configured to ensure that the emission beam reaching the detector (125) is close to the characteristic emission wavelength of the particular dye, and wherein the linearly movable platform (365) has a rectangular shape to accommodate the plurality of optical devices (320a, 320b, 320c, 320d) and is configured to be moved linearly to position different optical devices (320a, 320b, 320c, 320d) to receive light from the light source (105) so that one of the optical devices (320a, 320b, 320c, 320d) is interposed into the path of the source beam;

the detector (125) adapted to simultaneously receive the fluorescent emission light emitted from the samples located in the plurality of sample wells; and

wherein the light source (105) and each of the plurality of optical devices (320a, 320b, 320c, 320d) are adapted to provide the source beam simultaneously

to the plurality of sample wells, each of the plurality of optical devices (320a, 320b, 320c, 320d) is adapted to provide the fluorescent emission light from the samples located in the plurality of sample wells simultaneously to the detector (125), and the detector (125) is adapted to generate a data signal that includes information that is representative of the concentration of DNA in the samples located in the plurality of sample wells based on particular dyes."

Claim 1 of auxiliary request 11 "2:00 pm" differs from claim 1 of auxiliary request 10 "11:30 am" in that the term "and" in the expression "and wherein the linearly movable platform has a rectangular shape [...]" in the fifth paragraph of the claim reading "a plurality of optical devices [...] interposed into the path of the source beam" has been deleted, and in that the mentioned paragraph further reads:

"and to position a light blocker (335) so that the light blocker (335) is interposed to prevent the source beam from reaching the plurality of sample wells".

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
- 2.1 *Admissibility*

The main request was filed in reply to the board's communication annexed to the summons. The claims of

this request differ from those of the main request filed with the statement of grounds of appeal only by the incorporation of reference signs relating to the drawings into the claims in accordance with Rule 43(7) EPC. The subject-matter of claim 1 of the present main request corresponds in substance to that of claim 1 of the first auxiliary request underlying the decision under appeal and refused by the examining division for lack of inventive step. Under these circumstances, the board, exercising its discretion under Article 13(1) RPBA and taking into consideration the provisions of Article 12(4) RPBA, admitted the main request into the appeal proceedings.

2.2 Articles 76(1) and 123(2) EPC

In its decision the examining division held that claim 1 of the then first auxiliary request complied with the requirements of Article 76(1) EPC, and the board is satisfied that this conclusion applies to claim 1 of the present main request. In particular, the subject-matter of claim 1 is based

- on the embodiment disclosed in paragraph [040] with reference to Fig. 3B of the grand-parent application as originally filed, together with the following figures and passages of the description of the mentioned application: Fig. 1, 2 and 6, and paragraphs [001], [021], [027] to [030], [032], [036], [037], [042], and [060] to [063] of the description (see the corresponding publication WO 2005/068976), and

- on the corresponding figures and passages of the description of the parent application as originally filed (see the corresponding publication EP 1 873 512).

In addition, the figures and the description of the present application as originally filed are essentially identical to the figures and the description of both the grand-parent and the parent application as originally filed. Therefore, claim 1 is also based on the figures and the passages of the description of the application as originally filed corresponding to the figures and the passages of the grand-parent and the parent application as originally filed mentioned above. Consequently, claim 1 also satisfies the requirements of Article 123(2) EPC.

2.3 Clarity

2.3.1 Claim 1 is essentially directed to a fluorometry device in which the light beam from a light source is projected on samples located in a plurality of sample wells and the fluorescence emission light emitted by the samples is received by a detector. The claimed device also comprises a plurality of optical devices each comprising an excitation filter for filtering the light-source beam, an emission filter for filtering fluorescence emission light from the samples, and a beam splitter for separating the light-source beam from the fluorescence emission light. In addition, each of the plurality of optical devices is coupled to a same linearly movable platform, and the excitation and the emission filters of each of the plurality of optical devices is configured with respect to a particular dye as claimed.

The linearly movable platform allows the selective positioning of the optical devices in the fluorometry device. It is, however, unclear in the claimed arrangement what is the relationship between the plurality of optical devices coupled to the linearly

movable platform and the remaining optical components of the fluorometry device. In particular, it is unclear in claim 1 whether the claimed arrangement of movable optical devices is such that, at each position of operation of the linearly movable platform, only one of the optical devices, or two or more of them, are brought into optical alignment with the remaining components of the fluorometry device, or whether claim 1 encompasses all these possibilities. More particularly, claim 1 requires that "the detector [is] adapted to simultaneously receive the fluorescence emission light emitted from the samples", and it is unclear whether the claimed arrangement of movable optical devices is such that, depending on the position of the linearly movable platform, the detector simultaneously receives fluorescence emission light from the samples transmitted through only a selected one of the optical devices, or through two or more of the plurality of the optical devices, and whether the claimed subject-matter encompasses all these possibilities. Furthermore, the last paragraph of claim 1 requires that "each of the plurality of optical devices are adapted to provide the source beam simultaneously to the plurality of sample wells" and also "adapted to provide the fluorescent emission light from the samples [...] simultaneously to the detector", and it is also unclear in this formulation whether the claimed movable arrangement of optical devices is such that only a selected one, or two or more of the optical devices, are optically aligned with respect to the remaining components so as to simultaneously direct the source beam to the plurality of sample wells and to simultaneously direct the fluorescent emission light from the samples to the detector.

In addition, while the application as originally filed contains a clear disclosure of embodiments in which only one of the plurality of optical devices is selectively brought into optical alignment with the remaining components of the fluorometry device by means of the linearly movable platform (see paragraph [040] of the description, together with Fig. 1, 3B and 6 and the corresponding description), there is no clear and unambiguous disclosure in the application as originally filed in support of an interpretation of the unclear formulation of claim 1 in the sense that more than one of the plurality of optical devices would simultaneously be brought into optical alignment with the remaining components of the fluorometry device so as to simultaneously operate with the source beam and with the fluorescent emission light as claimed (Article 123(2) EPC).

- 2.3.2 The appellant has submitted that the skilled person would not interpret claim 1 as involving more than one of the optical devices being simultaneously optically coupled to the fluorometry device.

The board does not find this argument persuasive because, first, there is no technical reason *a priori* for excluding, from the possible interpretations of the unclear claimed features under consideration, an interpretation according to which two or more of the optical devices are simultaneously optically coupled to the fluorometry device and, second, the prior art (see in particular document D5, Fig. 11) shows fluorometry devices of the claimed type operating with a plurality of optical devices each comprising a beamsplitter and in which more than one of the optical devices are simultaneously optically coupled to the fluorometry device.

The appellant has also submitted that, in any case, Fig. 3B of the application constituted a basis for interpreting the feature under consideration as also encompassing an arrangement in which two of the optical devices were simultaneously optically coupled to the fluorometry device, that the objected feature under consideration was supported by the application as originally filed (paragraph [040], last sentence), and that the applicant was entitled to this broad formulation also encompassing the mentioned arrangement.

The board first notes that Fig. 3B is a schematic representation of an arrangement comprising a linearly movable platform (365) comprising a plurality of optical devices (320a to 320d) and a light blocker (335), and a light source (305) aligned with the light blocker (335), and that a mere comparison of the relative sizes of the light source and the optical devices schematically represented in the figure is not sufficient to convey a clear and unambiguous teaching that the arrangement would allow simultaneously optically coupling two adjacent optical devices with the light source and with the remaining components of the fluorometry device. Moreover, the description of the application as originally filed contains passages that are also ambiguous in this respect (see for example "The linearly movable platform [...] can be moved linearly to position the attachments to receive light from the light source" in paragraph [040]) and, in view of the ambiguity, these passages do not constitute a clear and unambiguous disclosure in support of an interpretation of claim 1 as also covering the operation of the fluorometry device with more than one of the optical devices being optically

coupled with the remaining components of the fluorometry device. In addition, a claim containing a broad feature formulated in ambiguous terms remains ambiguous, and therefore unclear under Article 84 EPC, even if the ambiguous formulation of the feature is present in the description of the application as originally filed.

2.3.3 In view of the above considerations, the board concludes that claim 1 does not satisfy the requirements of clarity of Article 84 EPC and that, consequently, the main request is not allowable.

3. *Auxiliary request 1*

Claim 1 of auxiliary request 1 is identical to claim 1 of the main request. Therefore, the same considerations and conclusions set forth in points 2.1 and 2.2 above in respect of claim 1 of the main request also apply to claim 1 of auxiliary request 1. In addition, claim 1 of auxiliary request 1 does not satisfy the requirements of clarity of Article 84 EPC for the same reasons given in point 2.3 above in respect of claim 1 of the main request.

Consequently, auxiliary request 1 was admitted into the appeal proceedings, but is not allowable.

4. *Auxiliary requests 2 to 9*

4.1 Admissibility

4.1.1 The claims of auxiliary requests 2 to 7 differ from the claims of auxiliary requests 2 to 7 submitted with the statement of grounds of appeal only by the incorporation of reference signs relating to the

drawings into the claims in accordance with Rule 43(7) EPC, and the subject-matter of claim 1 of each of the present auxiliary requests 2 to 7 consists of the subject-matter of claim 1 of the main request in combination with additional features introduced into the respective claim 1. These additional features were introduced into the corresponding claim 1 of auxiliary requests 2 to 7 in order to overcome the objection of lack of inventive step raised by the examining division in respect of claim 1 of the then first auxiliary request, the subject-matter of which corresponded in substance with that of claim 1 of the present main request.

The board notes that during the first-instance oral proceedings

- the examining division admitted a main request and first to third auxiliary requests previously filed in writing by the appellant in reply to objections raised under Articles 56, 76(1) and 123(2) EPC in the communication annexed to the summons;

- during the discussion that took place during the first-instance oral proceedings on the issues under Article 76(1) EPC, the examining division was of the view that all these requests contravened Article 76(1) EPC, and subsequently admitted into the proceedings a replacement of the first auxiliary request and then a subsequent replacement of that request, resulting in an amended first auxiliary request - i.e. the first auxiliary request underlying the decision under appeal - which was then considered to comply with Article 76(1) EPC;

- the subject-matter of claim 1 of this amended first auxiliary request was then considered by the examining division not to involve an inventive step, in particular in view of a line of argument presented in

the consultation by telephone held on 24 January 2014, i.e. six days before the date of the oral proceedings (see point 6.2 of the communication dated 29 January 2014 showing the result of the telephone consultation, sent also by fax on 24 January 2014); and

- in reply to the examining division's objection of lack of inventive step, the appellant expressed the intention to file a further amended request in order to overcome the objection under Article 56 EPC, but the examining division did not consent to further amendments.

During the appeal proceedings the appellant has contested the use by the examining division of its discretionary power not to consent to further amendments during the oral proceedings, and has submitted that the examining division's failure to consent to further amendments would justify the filing of auxiliary requests 1 to 7 with the statement of grounds of appeal and their admission into the proceedings.

In view of these facts, and more particularly in view of

- the new elements in the line of argument of lack of inventive step presented by the examining division by telephone six days before the first-instance oral proceedings and also during the oral proceedings (in particular, the formulation of different, unconnected objective problems solved by the claimed invention, and the additional combination of two documents in respect of one of the distinguishing features), and of

- the application of the mentioned line of argument to claim 1 of the first auxiliary request amended during the oral proceedings,

the board is of the opinion that the examining division should at least have accepted the proposal of the appellant to file amendments in reaction to the objection of lack of inventive step in order to subsequently decide on the admissibility of the amended request according to the appropriate criteria and, if admitted, on its allowability.

It follows that auxiliary requests 2 to 7 were submitted with the statement of grounds of appeal in reaction to the examining division's objection of lack of inventive step of the then first auxiliary request and also in reaction to the refusal by the examining division to consent to the filing of amendments without first considering the extent and the nature of the proposed amendments. In these circumstances, the board considers that the filing of auxiliary requests 2 to 7 with the statement of grounds of appeal constituted an appropriate reaction from the part of the appellant to the decision under appeal.

Having regard to the above, and noting that the present auxiliary requests 2 to 7 were filed in reply to the board's communication annexed to the summons to oral proceedings and differ from the preceding auxiliary requests 2 to 7 only by the incorporation of reference signs relating to the drawings, the board, exercising its discretion under Article 13(1) RPBA and taking into consideration the provisions of Article 12(4) RPBA, admitted the present auxiliary requests 2 to 7 into the appeal proceedings.

4.1.2 Auxiliary requests 8 and 9 correspond to auxiliary requests 10 and 11 filed in reply to the communication annexed to the summons to oral proceedings. Claim 1 of each of these two requests differ from claim 1 of the

main request by the incorporation of additional features into the claim which was introduced, among other reasons, as an attempt to overcome the objection under Article 84 EPC raised in the board's communication and addressed in point 2.3 above.

In view of these considerations, the board, exercising its discretion under Article 13(1) RPBA, admitted auxiliary requests 8 and 9 into the appeal proceedings.

4.2 Clarity

Claim 1 of each of auxiliary requests 2 to 9 contains the same features objected under Article 84 EPC in point 2.3 above in respect of claim 1 of the main request. In addition, none of the additional features introduced in claim 1 of each of these requests overcomes the mentioned objection. In particular,

- the additional features introduced in claim 1 of auxiliary requests 2 to 7 involve features relating to the light source, the samples, the sample receiving means and the beamsplitter, and none of these features has an incidence on the unclear features relating to the movable arrangement of plurality of optical devices addressed in point 2.3 above; and

- claim 1 of each of auxiliary requests 8 and 9 specify that the linearly movable platform "is configured to be moved linearly to position different optical devices [...] to receive light from the light source", and this feature does not overcome the objection under consideration because, contrary to the appellant's submissions, the expression "to position different optical devices" still leaves open whether only one of the optical devices, or a plurality of them, are positioned to be optically coupled to the

fluorometry device so as to receive light from the light source.

For these reasons, claim 1 of auxiliary requests 2 to 9 is not clear (Article 84 EPC) for the same reasons given in point 2.3 above in respect of claim 1 of the main request. Therefore, auxiliary requests 2 to 9 are not allowable.

5. *Auxiliary request 10 "11:30 am"*

5.1 Admissibility

The claims of auxiliary request 10 "11:30 am" (in the following "auxiliary request 10") correspond to the claims of present auxiliary request 8, the corresponding claim 1 having been amended during the oral proceedings to take account of the issues raised during the discussion on the clarity of claim 1 of auxiliary requests 8 and 9, and in particular of the fact that the features introduced into the claims of auxiliary requests 8 and 9 were considered by the board insufficient to overcome the objections of lack of clarity under consideration. In particular, the amended claim 1 requires that the different optical devices are positioned "so that one of the optical devices (320a, 320b, 320c, 320d) is interposed into the path of the source beam", and this feature overcomes the objection of lack of clarity raised in respect of claim 1 of the main request. In addition, claim 1 has also been amended to make clear that the detector constitutes a component of the claimed fluorometry device.

In these circumstances, the board, exercising its discretion under Article 13(1) RPBA, admitted auxiliary request 10 into the appeal proceedings.

5.2 Articles 76(1), 84 and 123(2) EPC

When compared with claim 1 of the main request (see point 2.2 above), claim 1 of auxiliary request 10 specifies, in addition, the features relating to the rectangular shape of the linearly movable platform, the features relating to the positioning of the optical devices to receive light from the light source so that one of the optical devices is interposed into the path of the source beam, and the last feature of the claim specifying that the generation by the detector of a data signal including information representative of the concentration of DNA in the samples is based on particular dyes. These features are respectively based on paragraph [040], on paragraph [028], and on paragraph [033] of the description of the grandparent application as originally filed, and also on the corresponding passages of the description of the parent application and of the description of the application as originally filed. Therefore, amended claim 1 satisfies the requirements of Articles 76(1) and 123(2) EPC.

In addition, as already noted in point 5.1 above, the amendments overcome the objection of clarity raised in points 2.3, 3 and 4.2 above in respect of claim 1 of the main request and of auxiliary requests 1 to 9 (Article 84 EPC).

5.3 Novelty

In the decision under appeal the examining division held that the subject-matter of claim 1 of the then first auxiliary request was new over the available prior art, and in particular over document D5. In the

board's view this conclusion also applies to claim 1 of auxiliary request 10. In particular, document D5 discloses a fluorometry device (Figs. 1 and 2, together with paragraphs [002] and [028] to [044]) comprising

- a detector (detector 80, and paragraph [038]);
- a light source (light source 10) adapted to provide a source beam (paragraph [028], lines 3 and 4);
- a plurality of sample wells (sample wells 44, paragraph [028], lines 6 to 10, and paragraph [029], lines 1 to 4);

- a plurality of optical devices (Figs. 3 and 4, and paragraphs [044] and [045], in particular paragraph [044], lines 3 to 6, and paragraph [045], last sentence), each of the optical devices comprising an excitation filter (filter 100) adapted to filter the source beam (paragraph [041]), an emission filter (filter 120) adapted to filter fluorescence emission light from the samples located in the plurality of sample wells (paragraph [042]), and a beamsplitter (beamsplitter 60) for separating the source beam from the fluorescence emission light (Fig. 2, and page 7, lines 4 to 6);

- wherein the optical devices are selectively positioned in the optical path of the excitation and the emission beams so that one of the optical devices is interposed into the path of the source beam (Fig. 2, together with paragraph [044], lines 3 to 6, and paragraph [045], last sentence);

- wherein for each optical device the excitation filter is configured to ensure that the excitation beam is close to the characteristic excitation wavelength of a particular dye (paragraphs [041], [044], [059] and [074]), and the emission filter is configured to ensure that the emission beam reaching the detector is close to the characteristic emission wavelength of the

particular dye (paragraphs [042], [044], [059] and [074]);

- wherein the detector is adapted to simultaneously receive the fluorescence emission light emitted from the samples located in the sample wells (Figs. 1 and 2, and the corresponding description, see in particular paragraph [085]); and

- wherein the light source and each of the optical devices are adapted to provide the source beam simultaneously to the plurality of sample wells (Figs. 1 and 2, together with paragraphs [005] and [006], and lines 12 to 14 of paragraph [046]), each of the optical devices is adapted to provide the fluorescence emission light from the samples located in the plurality of sample wells simultaneously to the detector (Fig. 2 and the corresponding description, see in particular the first sentence of each of paragraphs [039] and [085]), and the detector is adapted to generate a data signal that includes information representative of the concentration of DNA in the samples located in the plurality of sample wells based on particular dyes (paragraphs [073] and [081]).

The fluorometry device defined in claim 1 of auxiliary request 10 differs from the fluorometry device disclosed in document D5 only in that, while in document D5 the plurality of optical devices are separate devices configured to be manually and selectively positioned in the optical path of the excitation and the emission beams to receive light from the light source (paragraphs [044] and [045]), in the claimed fluorometry device the plurality of optical devices is coupled to a same linearly movable platform having a rectangular shape for carrying out the mentioned selective positioning of the optical devices.

During the appeal proceedings the appellant has submitted that document D5 disclosed a fluorometry device comprising only one optical device, and also disclosed that this optical device could manually be replaced by another optical device, but that the document did not disclose a fluorometry device comprising a plurality of optical devices. The board cannot follow this argument because the disclosure of document D5 relating to a first optical device and to an additional optical device having the same structure but different optical characteristics and manually interchangeable with the first optical device constitutes a disclosure of two optical devices that can selectively be inserted in the fluorometry device during the operation of the same, and therefore it also constitutes a disclosure of a fluorometry device comprising the two optical devices.

The appellant has also submitted that document D5 disclosed the use of each of the optical devices for measuring a respective one of the dyes, but that the document did not disclose that a sample had a plurality of dyes the fluorescence of which was sequentially or selectively measured (paragraph [064] of the description). However, the board notes that claim 1 only requires that the excitation filter of each of the optical devices is configured to ensure that the excitation beam is close to the characteristic excitation wavelength "of a particular dye", that the emission filter of each of the optical devices is adapted to filter fluorescent emission light "from the samples" and is configured to ensure that the emission beam reaching the detector is close to the characteristic emission wavelength "of the particular dye", and that the response of the detector is based

"on particular dyes". Therefore, claim 1 is not restricted to a predetermined relationship between the dye or dyes in the different samples, and the additional distinguishing feature submitted by the appellant is not supported by the claimed subject-matter.

In view of the above considerations, the board concludes that the subject-matter of claim 1 of auxiliary request 10 is novel (Article 54(1) EPC).

5.4 Inventive step

5.4.1 The board concurs with the appellant that document D5 represents the closest state of the art.

The technical effect of the distinguishing features of the claimed fluorometry device over the device disclosed in document D5 (see point 5.3 above, second paragraph) is improving the handling of the optical devices and the speed of the operation of selectively positioning the different optical devices in the optical path of the fluorometry device.

With the statement of grounds of appeal, the appellant has submitted that the distinguishing features had the additional technical effect of allowing more DNA concentrations to be quantitatively measured in a given period of time. However, in the board's view, when compared with the disclosure of document D5, none of the claimed features leads to an improvement of the number of samples that can be measured simultaneously, or the number of spectrally distinguishable species or of dyes that can be used. Therefore, any improvement relating to the higher number of DNA concentrations that can be quantitatively measured in a given period

of time would, to the extent that it is supported by the claimed subject-matter, be a direct consequence of the effect already mentioned above and relating to the improved speed in the exchange of the optical devices.

Accordingly, the objective technical problem solved by the claimed invention over the disclosure of document D5 can be formulated as the improvement in the handling of the optical devices and the improvement of the speed of the operation of selectively positioning the different optical devices in the optical path of the fluorometry device.

- 5.4.2 Document D8 pertains to the same specific technical field of the claimed invention, i.e. to the field of fluorometry systems (document D8, abstract). Furthermore, the fluorometry system of document D8 also involves a plurality of filtering optical modules each having a beamsplitter, but different optical characteristics, and configured to be selectively inserted in the optical path of the fluorometry system (see 120 in Fig. 4a, 4b and 5 together with the corresponding description). In addition, the document teaches to arrange the plurality of optical modules in a filter turret or in a filter slider (see "Filterrevolver oder Filterschieber" on page 67, lines 8 to 15). Even though not expressly mentioned in the document, the skilled person would understand that the filter turret and the filter slider serve the purpose of improving the handling of the modules and also improving the speed in the operation of selectively exchanging one optical module by another.

Therefore, the skilled person confronted with the objective problem formulated above and being aware of the disclosure of document D8 would consider the use of

a filter turret or of a filter slider for accommodating the optical devices of document D5 as a solution to the objective problem. In addition, the filter turret and the filter slide are disclosed in document D8 as two optically equivalent alternatives, and the skilled person would select either one of the two alternatives depending on the specific circumstances. In addition, a filter slider accommodating a plurality of the optical devices or modules under consideration constitutes a linearly movable platform as claimed, and it is straightforward to provide such a linearly movable slider with a rectangular shape as required by the claimed subject-matter.

In view of these considerations, the board is of the opinion that it would be obvious for the skilled person to apply the teaching of document D8 to the fluorometry device disclosed in document D5 in order to solve the objective problem under consideration, and thus to arrive at the claimed subject-matter.

- 5.4.3 The appellant has submitted that document D8 related to microscope type instruments with a much smaller field of view and a much higher resolution than the fluorometry device of document D5, and that for this reason the skilled person would not consider document D8 when solving the objective problem because in document D8 the optical devices were much smaller and it was much easier to couple them to a movable platform than the large optical devices required in document D5. In addition, according to the appellant, a fluorometry device of the type disclosed in document D5 required a degree of precision and of uniform illumination and uniform imaging capability that was much higher than that required in a microscope type fluorometry device as that disclosed in document D8.

However, the optical modules used in document D8, although configured to be inserted in a fluorometry device of the microscope imaging type, are, in operation, not inserted in the microscope imaging objective section, but in the illumination and image receiving section of the device (see Fig. 4a, 4b and 5). In addition, the optical devices of document D5 and the optical modules of document D8 have the same optical function and, even assuming that - as submitted by the appellant - the former would structurally be significantly larger than the latter, the skilled person would not refrain from applying the teaching of document D8 to the device disclosed in document D5 since it would be sufficient to consider the provision of the appropriate mechanical means for enabling the linear slider receiving the optical devices to be linearly moved as disclosed in document D8. As regards the appellant's arguments relating to the degree of precision in the positioning of the optical devices and to the degree of uniform illumination and uniform imaging capability of the samples, the board notes that the optical devices under consideration do not comprise imaging optical elements such as lenses and the like which require a high accuracy in their optical alignment for guaranteeing a predetermined degree of illumination uniformity and imaging precision, but only filters and a beamsplitter, the positioning of which is less critical. In addition, as also submitted by the appellant, the description of the application discloses specific means for positioning the optical devices in the movable platform and for optically aligning the optical devices with the fluorometry device (see paragraphs [033] and [034] of the description), but none of these features are defined in claim 1.

During the appeal proceedings the appellant has also submitted that a linearly movable, rectangular platform as claimed presented technical advantages over the use of other type of movable platforms, and in particular over the use of rotatable platforms such as the filter turret mentioned as an alternative in document D8. In particular, a linearly movable, rectangular platform would be smaller, lighter, and more compact than a rotatable platform (see Fig. 3A and 3B of the application) and, in addition, could be moved faster, and document D8 did not contain any teaching in this respect that would prompt the skilled person to select the filter slider among the two alternatives disclosed as equivalent in document D8.

In the board's view, however, whether a linearly movable platform containing a plurality of optical devices is smaller and/or lighter and/or more compact and/or can be moved faster than a rotationally movable platform containing the same optical devices depends on different factors, and in particular on the number and the specific arrangement of the optical devices on the platform, and none of the features of claim 1 allows the conclusion that the linearly movable platform of the claimed device is smaller, or lighter, or more compact, or can be moved faster than a rotationally movable platform. In particular, a circular, regular arrangement of a big number of elements is, at least in one direction, generally more compact and smaller than the corresponding linear arrangement; in addition, in the case of a fluorometry device comprising only two optical devices, the two optical devices can be arranged adjacent to each other on a platform, and the question of whether this platform is linearly or rotationally movable would in this case play no role in

the size, in the weight and in the compactness of the platform.

During the oral proceedings the appellant has also submitted that the two optical modules 120 represented in Fig. 4a of document D8 had their respective beamsplitter facing each other, so that the skilled person would understand that the corresponding platform would be movable only by rotation because only under rotation would the corresponding beamsplitter be appropriately oriented with the remaining optical components of the fluorometry device. The board concurs with this submission of the appellant. However, this submission does not invalidate the line of argument presented above because the skilled person would understand that the two modules 120 schematically represented in Fig. 4a (see also Fig. 4b and 5) show the relative orientation of two optical modules when mounted on the rotatable filter turret disclosed in the document, and that when mounting the two optical modules in the linearly movable filter slider disclosed as an alternative in the document the two optical modules schematically represented in the figure would then have to be re-oriented with respect to each other so that the corresponding beamsplitter is appropriately oriented with the remaining optical components of the fluorometry device upon a linear movement of the filter slider.

Finally, the appellant has also submitted that the combination of documents D5 and D8 did not result in a linearly movable platform unambiguously having a rectangular shape, and that for this reason alone claim 1 involved an inventive step. The board, however, notes that the assessment of inventive step on the basis of two documents is not confined to the mere combination

of the corresponding disclosures as such, but also covers the implementation by the skilled person of the corresponding combination. According to the line of argument presented in point 5.4.2 above, it would be obvious for the skilled person to combine the disclosure of document D5 with the teaching of document D8 and to arrive at a linearly movable slider comprising a plurality of optical devices. In addition, this slider constitutes an elongated platform and the plurality of optical devices would be arranged linearly along the elongated platform. When implementing in practice the mentioned combination the skilled person would therefore understand that such an elongated slider platform is generally rectangular, or at least would consider providing the elongated platform with a rectangular shape as this shape is the minimal regular shape of an elongated slider platform receiving the linear arrangement of optical devices.

5.5 In view of the above considerations, the board concludes that the subject-matter of claim 1 of auxiliary request 10 does not involve an inventive step (Article 56 EPC).

6. *Auxiliary request 11 "2:00 pm" - Admissibility*

Claim 1 of auxiliary request 11 "2:00 pm" (in the following "auxiliary request 11") differs from claim 1 of auxiliary request 10 by an additional feature requiring that the linearly movable platform is also configured "to position a light blocker (335) so that the light blocker (335) is interposed to prevent the source beam from reaching the plurality of sample wells". This amended claim 1 was filed during the oral proceedings after the board informed the party on its

opinion that the subject-matter of claim 1 of auxiliary request 10 did not involve an inventive step.

During the oral proceedings the appellant submitted that the amendments to claim 1 according to auxiliary request 11 were occasioned by, and therefore justified in view of, the view of the board that claim 1 of auxiliary request 10 lacked an inventive step.

However, the objection of lack of inventive step of the subject-matter of claim 1 of auxiliary request 10 corresponds in substance with the objection of lack of inventive step already presented by the board in the communication annexed to the summons to oral proceedings in respect to claim 1 of the main request. In particular, the board already noted in the mentioned communication that according to its preliminary opinion the subject-matter of claim 1 of the then main request lacked an inventive step over - among other combinations - a combination of documents D5 and D8. In addition, the additional features of claim 1 of auxiliary request 10 were introduced into the claim primarily in response to objections of lack of clarity (see point 5.1 above) and have, in substance, no impact on the mentioned line of argument of lack of inventive step already presented by the board in the mentioned communication. Accordingly, an amended claim 1 incorporating the feature referred to above and now incorporated in claim 1 of auxiliary request 11 could already have been filed in advance to the oral proceedings, in particular with the letter filed by the appellant in reply to the board's communication, and the board sees no new - let alone unexpected - situation or special circumstance that could have justified the filing of auxiliary request 11 at such a late stage of the proceedings.

In addition, the amendment introduced into claim 1 relates to the features of a light blocker which, according to the appellant, avoided - without switching off the light sources - continuously illuminating the samples and bleaching them, and none of the structural and functional features of the light blocker were previously addressed during the first-instance proceedings or during the appeal proceedings. It is noted in this respect that the mentioned features were not present in the claims of the different requests considered during the first-instance examination proceedings and the appeal proceedings, that the provision of a light blocker was only specified in the description of the application (paragraphs [027] and [028], and Fig. 3B and the corresponding description), and that it is not even apparent that the corresponding features were covered by the search.

In view of all these considerations, the admission of auxiliary request 11 into the proceedings would have confronted the board for the first time during the oral proceedings with the assessment of features which have never been previously assessed during the proceedings, with the consequence that the board would not have been in a position to address the amended claim 1 without adjournment of the oral proceedings or remitting the case to the examining division for further prosecution. Each of these options, however, would have gone against procedural economy.

For all these reasons, the board, exercising its discretion under Article 13(1) and (3) RPBA, decided not to admit auxiliary request 11 into the appeal proceedings.

7. In the absence of an allowable request, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Kiehl

R. Bekkering

Decision electronically authenticated