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**D E C I S I O N**  
**of 14 July 2005**

**Case Number:** W 0009/05 - 3.4.2

**Application Number:** PCT/DK0400172

**Publication Number:** -

**IPC:** G02B 26/02

**Language of the proceedings:** EN

**Title of invention:**

Method for establishing a light beam with substantially constant luminous intensity

**Applicant:**

DICON A/S

**Opponent:**

-

**Headword:**

-

**Relevant legal provisions:**

PCT Art. 17, 19

PCT R. 40

**Keyword:**

"Unity *"a posteriori"* - yes"

**Decisions cited:**

G 0001/89, G 0002/89

**Catchword:**

For the purpose of the international search an objection of non-unity *"a posteriori"* shall not be based on a rather formal comparison of the claimed subject-matter with the prior art. The claims shall rather be construed as it could be expected that they would be amended in due course, e.g. to better reflect the teaching of the patent application.



Case Number: W 0009/05 - 3.4.2

International Application No. PCT/DK0400172

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 14 July 2005

**Applicant:** DICON A/S  
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**Representative:** Patentgruppen ApS  
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**Decision under appeal:** Protest according to Rule 40.2(c) of the Patent Cooperation Treaty made by the applicants against the invitation (payment of additional fees) of the European Patent Office (International Searching Authority) dated 28 October 2004 .

**Composition of the Board:**

**Chairman:** A. G. Klein  
**Members:** M. P. Stock  
C. Holtz

## Summary of Facts and Submissions

I. The present international patent application PCT/DK2004/000172 comprises 76 claims on which the international search has been based. There is one independent claim related to a method, namely claim 1, another independent claim related to an apparatus, namely claim 76, and two claims related to a use of the method, namely claims 74 and 75. These claims read as follows:

"1. Method for establishing a light beam (CLB) with substantially constant luminous intensity comprising the steps of

- establishing a light beam (LB) by means of a light source (SAL) and
- controlling an attenuation of said light beam (LB) on the basis of occurrences of luminous intensity peaks (IP) in said light beam (LB)."

"74. Use of the method according to any of the claims 1 to 73 in a light modulating arrangement used for photolithography."

"75. Use of the method according to any of the claims 1 to 74 in a light modulating arrangement used for image projection."

"76. An apparatus establishing a light beam (CLB) with substantially constant luminous intensity comprising a light source (SAL) establishing a light beam (LB), a variable attenuation means (VAM), and an attenuation control means (ACM);

wherein said light beam is moderated into a light beam (CLB) with substantially constant luminous intensity by means of the method according to any of the claims 1 to 73."

II. An invitation to pay additional fees was issued by the European Patent Office as International Searching Authority (ISA) under Article 17(3)(a) and Rule 40.1 PCT. The ISA considered that there were eight different inventions claimed not complying with the requirement of unity, and issued a partial search report for the first invention. The ISA based their reasoning on an assessment of the contents of the following documents:

D1: US-A-2003/020412

D3: US-A-2002/050564

III. With letter dated 29 November 2004 the applicant paid one additional search fee under protest for the second invention. The applicant also provided arguments that the application claimed met the requirements of unity and that a search be carried out for the entire application.

IV. In a notification regarding review of justification for invitation to pay additional search fees the ISA stated that the invitation to pay additional fees was justified. The applicant was invited to pay the protest fee.

V. By letter dated 21 February 2005 the applicant informed the ISA that the protest fee had been paid.

## Reasons for the Decision

### 1. *Unity "a posteriori"*

In the present case the ISA argued non-unity after searching which is commonly known as non-unity "*a posteriori*" in contrast to a non-unity "*a priori*" which is apparent without any search. In the decisions G 1/89 (OJ 1991, 155) and G 2/89 (OJ 1991, 166) the Enlarged Board held that the consideration of novelty and inventive step by the ISA for deciding whether the application lacks unity *a posteriori* is only provisional in the sense that this consideration has only procedural effect for initiating the special procedure laid down in Article 17 and Rule 40 PCT. Therefore any statement on novelty and inventive step made by the present Board in the following is provisional in this sense.

### 2. *Interpretation of the subject-matter claimed*

For a proper interpretation of the present invention as a whole for the purpose of searching the relevant state of the art not only the claims but also the field, object and summary of the invention as indicated in the present application are to be taken into account. In addition, it should be considered whether the embodiments described in the application are consistent with the interpretation of the claims.

Under the heading "Field of the invention" it is indicated at page 1, lines 5 to 8, that "the present invention relates to a method for establishing a light

beam with substantially constant luminous intensity, e.g. relating to short arc lamps driven by peaked AC or DC supplies." Current peaking is used in order to overcome the problem of fluctuations, see page 1, lines 24 to 29.

According to the application, page 2, lines 23 to 27, it is an object of the present invention "to establish attenuation means for absorbing or otherwise rejecting the additional luminous intensity which may occur periodically in a light beam, e.g. for short arc lamps at the supply peaking times, so that the luminous intensity becomes constant, thus establishing a light beam with substantially constant luminous intensity.

Having this in mind it is evident that the feature in claim 1 "controlling an attenuation of said light beam on the basis of occurrences of luminous intensity peaks in said light beam" does not intend to define the normal controlling of the lamp current in response to a control signal reflecting the luminous intensity, but to attenuate, i.e. partially absorb or reject, the light beam in order to remove the luminous intensity peaks and thereby obtain a constant intensity. This is confirmed by the summary of the invention, in particular, see page 3, lines 10 to 12. It is also clear from the terms "absorbing" and "rejecting" that the attenuation of the light beam means acting on the beam after it has been emitted by the light source. All embodiments described in the application are related to attenuation means acting on the emitted beam.

3. *Novelty*

Document D1, see paragraphs [0001] to [0007] relates to an electronic circuit for operating High Discharge Intensity (HID) lamps which have the disadvantage of undesirable fluctuations due to the effect of arc shift ("flicker effect"). It is mentioned that an additional high current pulse in the waveform of the lamp current before commutation thereof can suppress the flicker effect. However, it is further stated in D1, that this current peaking has the disadvantage that the lamp ballast becomes larger and more expensive and that life of the lamp is reduced. Therefore current peaking is not employed in D1.

D1, see Figure 1 and paragraph [0030], discloses in agreement with claim 1 of the present application a method for establishing a light beam with substantial constant luminous intensity comprising the step of establishing a light beam by means of a light source. The method of claim 1 would be fully anticipated by D1, if the lamp ballast 100 controlling the current of the HID lamp in order to obtain constant electrical power and constant luminous output could be identified with the controlling of attenuation defined in claim 1.

First of all it is at least doubtful, as was shown above, whether controlling the generation of a light beam, as in D1 by controlling the discharge current, falls under or is identical with, controlling an attenuation of the light beam, as attenuation of a light beam is related to acting on the already generated and emitted beam, e.g. by absorption.

Secondly, it is indicated in D1, see paragraph [0038] that the lamp current is increased to counteract a drop in brightness of the lamp and is reduced when the HID lamp provides again a brighter light due to a changed arc position. This change of brightness occurs as a step function and not in a peak. Eventually the lamp current is also reduced again to its rated value although the brightness has not increased, thus providing a reduced brightness. Hence, if reducing of the lamp current could be considered as an attenuation of the light beam at all, this attenuation would not be controlled "on the basis of occurrences of luminous intensity peaks in said light beam" as is required by the last feature of claim 1.

Therefore, in contrast with the view expressed by the ISA in their invitation to pay additional fees, the subject-matter of claim 1, in a proper interpretation, differs from what is disclosed in D1.

In this connection the Board draws the attention to the fact, that according to Article 19 PCT the applicant is not entitled to an opportunity to amend the claims until he has received the search report, see also International Search Guidelines III-3.4. Evidently, this applies also to the situation where an application lacks unity, see Article 17(3)(a) and Rule 40 PCT. It is stated in the International Search Guidelines III-3.6 that, "in principle, and insofar as possible and reasonable, the search should cover the entire subject-matter to which the claims are directed or to which they might reasonably be expected to be directed after they have been amended." This means that in cases like the present one an argued lack of novelty shall not be



based on a rather formal comparison of the claimed subject-matter with the prior art. The claims shall rather be construed as it could reasonably be expected that they would be amended in due course, e.g. to better reflect the teaching of the patent application.

4. *Objective technical problem*

The ISA also argued in their invitation to pay additional fees, that the problem of controlling an attenuation by arranging an optical component in the path of the light beam is known from D3 and that it cannot therefore be said to define a single concept linking the second to eighth inventions identified in the set of claims.

However, the scanning microscope described in D3, see Figure 1 and paragraph [0019], employs a pulse laser 1 as a light source. Therefore, controlling the intensity of the illumination light 8 such that a constant light power reaches the sample 14, as outlined in paragraph [0020], can refer only to the average power. In contrast to that, it is the object in the present application to remove any intensity peaks in a light beam occurring due to current peaking thereby obtaining a substantially constant luminous intensity.

5. *Conclusion*

For the above reasons, the Board is of the provisional opinion that the subject-matter of claim 1 when construed in a fair manner is novel over the prior art cited by the ISA and that the arguments given by the ISA and the Review Panel are not convincing. Claims 2

to 73 are dependent claims related to embodiments of the claimed method, which no longer lack unity according to an *a posteriori* approach. Claims 74 and 75 are related to uses of the claimed method and cause no unity problem. This holds also for claim 76 directed to an apparatus for carrying out the claimed method.

Hence, the Board reaches the conclusion that the protest is entirely justified with the consequences according to Rule 40.2(c) and (e) PCT.

## **Order**

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

The case is remitted to the International Searching Authority with the order to refund the additional search fee and the protest fee to the applicant.

The Registrar:

The Chairman:

C. Eickhoff

A. G. Klein