

Internal distribution code:

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

**Datasheet for the decision
of 16 February 2017**

Case Number: T 0406/12 - 3.5.02

Application Number: 05425043.6

Publication Number: 1689212

IPC: H05B33/08, H05B41/392

Language of the proceedings: EN

Title of invention:

Method and system for dimming light sources

Patent Proprietors:

OSRAM GmbH
OSRAM S.P.A. - SOCIETA' RIUNITE OSRAM
EDISON CLERICI

Opponent:

Ledon Lighting GmbH

Relevant legal provisions:

EPC Art. 54(2)
RPBA Art. 13(1)

Keyword:

Novelty - main request (no)
Late-filed auxiliary requests - admitted (no)



Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0406/12 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 16 February 2017

Appellant:
(Opponent)

Ledon Lighting GmbH
Millenium Park 2
6890 Lustenau (AT)

Representative:

Rupp, Christian
Mitscherlich PartmbB
Patent- und Rechtsanwälte
Sonnenstraße 33
80331 München (DE)

Respondent:

(Patent Proprietor 1)

OSRAM GmbH
Marcel-Breuer-Strasse 6
80807 München (DE)

Respondent:

(Patent Proprietor 2)

OSRAM S.P.A. - SOCIETA' RIUNITE OSRAM
EDISON CLERICI
Viale dell'Innovazione, 3
20126 Milano (IT)

Representative:

Bosotti, Luciano
Buzzi, Notaro & Antonielli d'Oulx
Via Maria Vittoria, 18
10123 Torino (IT)

Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted on
23 January 2012 concerning maintenance of the
European Patent No. 1689212 in amended form.

Composition of the Board:

Chairman R. Lord
Members: H. Bronold
 R. Cramer

Summary of Facts and Submissions

- I. The appeal lies from the decision of the opposition division concerning the maintenance of the patent in amended form according to then auxiliary request 1.
- II. The following document referred to during the opposition proceedings is relevant for this appeal:

E2: US 2003/0214242 A1.
- III. Oral proceedings before the board took place on 16 February 2017.
- IV. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.
- V. The respondents (patent proprietors) requested that the appeal be dismissed (main request), or alternatively that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims of the fourth auxiliary request filed with the letter of 13 January 2017, or on the basis of the claims of the final version of the fifth auxiliary request filed during the oral proceedings before the board, or on the basis of the claims of the sixth auxiliary request filed with the letter of 13 January 2017.
- VI. Independent claim 1 according to the main request (labelled auxiliary request 1, the request maintained in the decision under appeal) reads:

"A method of dimming over a dimming range (0%-100%) a light source (LED) whose brightness is a function of the average current flowing therethrough, said light source being a light emitting diode (LED) having a rated current value (I_{rated}), the method including, over one portion (L%-H%) of said dimming range (0%-100%), the joint operations of:

- feeding said light source (LED) with a current whose intensity (I) is switched with a given duty cycle (DR) between an on value and an off value, and
- adjusting at least one of said on and off values to a fraction of said rated value (I_{rated}), wherein it includes the step of varying over said one portion (L%-H%) of said dimming range (0%-100%) jointly both:
 - said given duty cycle (DR), and
 - said at least one of said on and off values of said switched current."

Independent claim 7 of this request relates to a corresponding circuit for dimming.

VII. Independent claim 1 of the fourth auxiliary request additionally contains the following features:

"wherein it includes, over said one portion (L%-H%) of said dimming range (0%-100%), the operations of:

- gradually bringing to said rated value (I_{rated}) said non-zero on value of said switched current, and
- jointly decreasing said given duty-cycle (DR) by gradually increasing the resulting average current through said light source (LED)."

Independent claim 6 of this request relates to a corresponding circuit for dimming.

VIII. Independent claim 1 of the fifth auxiliary request contains the following additional features compared to the independent claim 1 of the main request:

"wherein said dimming range (0%-100%) is partitioned in three portions and includes, in addition to said one portion (L%-H%):

- a lowest portion (0%-L%), wherein said light source is fed with a continuous, unswitched current whose intensity (I) is a fraction of said rated value (I_{rated}); and
- a highest portion (H%-100%), wherein said light source is fed with a current whose intensity (I) is switched with a given duty cycle (DR) between said rated value (I_{rated}) and zero."

Independent claim 6 of this request relates to a corresponding circuit for dimming.

IX. Independent claim 1 of the sixth auxiliary request contains the same additional features as the independent claim 1 of the fourth auxiliary request and the following features:

"wherein said dimming range (0%-100%) includes, in addition to said one portion (L%-H%), at least one of:

- a first portion (0%-L%), wherein said light source is fed with a continuous, unswitched current whose intensity (I) is a fraction of said rated value (I_{rated}); and
- a further portion (H%-100%), wherein said light source is fed with a current whose intensity (I) is switched with a given duty cycle (DR) between said rated value (I_{rated}) and zero."

Independent claim 5 of this request relates to a corresponding circuit for dimming.

- X. The relevant arguments of the patent proprietors were the following:

Main Request

Claim 1 according to the main request was clear under Article 84 EPC and did not contravene Article 123(2) EPC. The amendment "varying ... jointly both" was based on paragraphs [0039] and [0041] of the published European patent application (EP 1 689 212 A1). In particular paragraph [0039] disclosed the amendments in their broadest form as was evident from the wording "This is exemplary of the general possibility...of varying over at least one portion of the dimming range : - the duty cycle DR, and - at least one of the "on" and "off" values of the switched current fed to the light source...".

Fourth auxiliary request

The amendments in the fourth auxiliary request further restricted granted claim 1 and defined what happened in the transition interval (L%-H%) using the formulation "by gradually increasing". Corresponding subject-matter was contained in granted claim 4. With respect to granted claim 4 no objection under Article 83 EPC had been raised by the opponent.

Fifth auxiliary request

The features added to claim 1 of the fifth auxiliary request were originally disclosed. On the one hand it was clear that a fraction of the rated value of a

current was an adjustable value. On the other hand the term "given duty-cycle" was intended for dimming a light source. Therefore, it was self-evident that the given duty-cycle needed to be adjusted in order to achieve a dimming effect. Consequently, the fifth auxiliary request did not contravene Article 123(2) EPC.

Sixth auxiliary request

Regarding the sixth auxiliary request, the same arguments applied as for the fourth auxiliary request.

XI. The relevant arguments of the opponent were the following:

Main request

The last features of claims 1 and 7 of the main request starting with "wherein it includes the step of varying over said one portion...jointly both..." were not clear in the sense of Article 84 EPC. The definition included the constellation in which both the duty cycle and the at least one of said on and off values were increased or, both were decreased, which would not result in the desired dimming function.

Further, these features contravened Article 123(2) EPC. According to granted claim 3 the varying was defined as "selectively varying ... at least one of .. said duty cycle (DR), and on and off values". Figure 4 in combination with paragraphs [0038] and [0039] of the originally filed description, however, related purely to a variation of the on value and contained no disclosure regarding the off value. Further, the

"varying ...jointly both" was not disclosed in paragraph [0039]. Thus, these features of claims 1 and 7 of the main request were not directly and unambiguously derivable from the application as originally filed.

Fourth auxiliary request

Contrary to the allegation of the patent proprietors, the amendments of the fourth auxiliary request did not relate to what happened in the transition interval. Instead, the amendments mixed up the cause and the effect in the claimed subject-matter. The expression "by gradually increasing the resulting average current" was defined as the cause, whereas the expressions "gradually bringing to said rated value..." and "jointly decreasing said given duty-cycle..." were defined as the effect of the above cause. Such subject-matter was, however, not sufficiently disclosed in the sense of Article 83 EPC.

Therefore, auxiliary request 4 prima facie raised new issues and should not be admitted into the proceedings.

Fifth auxiliary request

The new features in the fifth auxiliary request were not originally disclosed. Regarding the feature "lowest portion" the original description in paragraph [0032] stated that the intensity of the continuous, switched current was adjusted whereas the feature added to claim 1 merely defined that the intensity of said current was a fraction of the rated value. Regarding the feature "highest portion" claim 1 defined a given duty cycle whereas the original description disclosed in paragraph

[0035] adjusting a duty cycle. Consequently, claim 1 contravened Article 123(2) EPC.

Consequently, auxiliary request 5 prima facie raised new issues and should not be admitted into the proceedings.

Sixth auxiliary request

Regarding the sixth auxiliary request, the same arguments applied as for the fourth auxiliary request.

Reasons for the Decision

1. The appeal is admissible.
2. Main request
 - 2.1 Article 84 EPC

The disputed features in claims 1 and 7 of the main request with respect to clarity under Article 84 EPC are "varying jointly both: -said given duty cycle (DR), and - said at least one of said on and off values of said switched current" referred to as features h), i) and j) in the submissions of the patent proprietors and of the opponent.

According to paragraph [0041] of the patent the varying of jointly both the duty cycle and the on value of the switched current leads to a gradually increasing resultant average current. The board is satisfied that

from this definition it is clear that both the duty cycle and the on value are varied, since both, i.e. PWM control and constant current control, are common general knowledge, such that the skilled person can understand what varying jointly both of those current control methods means.

Therefore, the fact that no unambiguous definition of the details of the varying jointly both the duty cycle and the on value of the switched current can be found in the whole specification relates to the scope of protection conferred by the claim containing that feature and not to the question whether the feature as such is clear. The board thus concludes that claims 1 and 7 of the main request are clear in the sense of Article 84 EPC.

2.2 Article 123(2) EPC

The question as to whether the addition of features h), i) and j) to claims 1 and 7 of the main request contravenes Article 123(2) EPC was a matter of dispute between the parties.

To that end, the originally filed description (published as EP 1 689 212 A1) discloses in paragraph [0039] that "This is exemplary of the general possibility...of varying over at least one portion of the dimming range: - the duty cycle DR, and - at least one of the "on" and "off" values of the switched current fed to the light source...". Although this disclosure does not explicitly state that "jointly both" the duty cycle and at least one of the on and off value are varied, it has the same meaning since the two current control methods in question are combined with

"and" for at least one period. Since only two control methods were available, the term "and" has the same meaning as "jointly both". The board is therefore satisfied, that claims 1 and 7 of the main request do not contravene Article 123(2) EPC.

2.3 Article 54(2) EPC

The question as to whether the subject-matter of claim 1 of the main request is novel over the disclosure of document E2 was also disputed between the parties.

The main issue was that as to whether document E2 disclosed features h), i) and j) of claim 1 reading:

"varying over said one portion (L% -H%) of said dimming range (0%-100%) jointly both:

- said given duty cycle (DR), and
- said at least one of said on and off values of said switched current."

Claim 1 of the main request does not include a definition of how the "varying ... jointly both" is to be carried out. Neither does the description contain any teaching clearly defining the correlation of the variations of duty cycle and switched current.

According to paragraph [0041] of the patent the varying of jointly both the duty cycle and the on value of the switched current shall result in a gradually increasing resulting average current. However, no unambiguous definition of the "varying jointly both" can be found in the whole specification. Consequently, any disclosure of "varying ... jointly both" falls under the wording of claim 1.

Document E2 discloses on page 2 in the last sentence of paragraph [0028] that "the system could also alter both signals simultaneously" wherein the one signal is the "Current Control Voltage", i.e. a variation of the on value of the switched current, and the other signal is the "PWM control signal", i.e. a variation of the given duty cycle. A similar disclosure can be found in claim 7 of E2.

The patent proprietors argued in this respect that paragraph [0028] of document E2 did not disclose a portion of a dimming range as claimed in claim 1, since a portion meant a subset of the whole dimming range. The board is however not convinced by this argument. The extent and arrangement of the portion according to claim 1 are not defined at all. Therefore, the unspecific disclosure of document E2 falls under the wording of claim 1.

Thus, the board concludes that document E2 contains a disclosure of features h), i) and j) at the same level of detail as the definition of said features in claim 1 of the main request.

Consequently, the subject-matter of claim 1 of the main request is not new in the sense of Article 54(2) EPC.

3. Fourth auxiliary request

3.1 Admissibility - Article 13(1) RPBA

The fourth auxiliary request was filed with letter dated 13 January 2017, i.e. just one month before the oral proceedings before the board and was thus filed at a very late stage of the proceedings.

According to the case law of the boards of appeal (see. Case Law of the Boards of Appeal, 8th Edition, IV.E. 4.2.5, page 1134) a new request filed at a very late stage of the proceedings should be clearly allowable, in the sense that it can be quickly ascertained that it overcomes all outstanding issues without raising new ones.

In claims 1 and 6 of the fourth auxiliary request, the last feature reads "by gradually increasing the resulting average current". As the feature is formulated, it specifies the cause of the effects preceding it in the claimed method. These effects according to the wording of claim 1 are "gradually bringing to said rated value said non-zero on value of said switched current" and "jointly decreasing said given duty-cycle (DR)".

However, the patent nowhere discloses how the defined effects can be achieved as a result of the specified cause, nor do the respective features of the claimed method form part of the common general knowledge of the person skilled in the art.

The board therefore concludes that claim 1 according to the fourth auxiliary request *prima facie* raises new issues, namely insufficiency of disclosure according to Article 83 EPC of the invention as now claimed.

Consequently, the board exercised its discretion under Article 13(1) RPBA not to admit the fourth auxiliary request into the proceedings.

4. Fifth auxiliary request

4.1 Admissibility Article 13(1) RPBA

The fifth auxiliary request was filed during the oral proceedings before the board and was thus filed at an even later stage of the proceedings.

The principles of case law of the boards of appeal mentioned above with respect to the fourth auxiliary request thus apply even more so to the fifth auxiliary request. Therefore, the fifth auxiliary request could exceptionally be admitted into the proceedings only if it prima facie overcomes the remaining objections without raising new issues.

However, the fifth auxiliary request prima facie raises new issues regarding inadmissible amendments under Article 123(2) EPC.

Independent claims 1 and 6 according to the fifth auxiliary request contain the feature "a lowest portion (0%-L%), wherein said light source is fed with a continuous, unswitched current whose intensity (I) is a fraction of said rated value (I_{rated})".

According to the patent proprietors, this feature is based on paragraph [0032] of the published European patent application EP 1 689 212 A1. According to the cited paragraph [0032] "In the lowest portion" the "LED brightness can be adjusted at the desired value by adjusting the intensity of the unswitched constant current".

Thus, the feature of adjusting the intensity of the unswitched current has been omitted in claims 1 and 6

of the fifth auxiliary request. The subject-matter of the fifth auxiliary request relates to dimming a LED over a dimming range. Dimming requires adjusting the average current through the LED. Since the lowest portion of the dimming range is defined to use an unswitched constant current, no dimming is possible without adjusting the intensity of the current. Therefore, the omission of adjusting the intensity of the current in the wording of claims 1 and 6 constitutes an intermediate generalisation of the original disclosure.

Thus, claims 1 and 6 of the fifth auxiliary request prima facie contravene Article 123(2) EPC.

Consequently, the board exercised its discretion under Article 13(1) RPBA not to admit the fifth auxiliary request into the proceedings.

5. Sixth auxiliary request

5.1 Admissibility Article 13(1) RPBA

Claims 1 and 5 of the sixth auxiliary request include the same additional features which were found to raise new issues, namely insufficiency of disclosure of the invention claimed according to Article 83 EPC, regarding the fourth auxiliary request, see above under 3.1.

Thus, regarding the sixth auxiliary request the board came to the same conclusion as that regarding the fourth auxiliary request, and therefore exercised its discretion under Article 13(1) RPBA not to admit the sixth auxiliary request into the proceedings.

6. Conclusion

Since the main request is not allowable and the fourth to sixth auxiliary requests are not admitted into the proceedings, the board has to accede to the appellant opponent's request to revoke the patent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated