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**Datasheet for the decision  
of 19 July 2011**

**Case Number:** T 1171/09 - 3.2.03

**Application Number:** 02804341.2

**Publication Number:** 1461565

**IPC:** F21V 29/00, F21V 5/04,  
F21V 3/04, B29D 11/00,  
G02B 17/00, H01L 33/00

**Language of the proceedings:** EN

**Title of invention:**  
High-heat-dissipation lighting module

**Patentee:**  
Fraen Corporation S.r.l.

**Opponent:**  
Automotive Lighting Reutlingen GmbH

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 123, 100(b)

**Relevant legal provisions (EPC 1973):**  
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**Keyword:**  
"Added subject-matter (no)"  
"Sufficiency of disclosure (yes)"  
"Novelty - consideration of complete teaching of prior art  
document (yes)"

**Decisions cited:**  
-

**Catchword:**

-

**Case Number:** T 1171/09 - 3.2.03

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.03**  
**of 19 July 2011**

**Appellant:** Fraen Corporation S.r.l.  
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**Representative:** Jorio, Paolo  
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**Respondent:** Automotive Lighting Reutlingen GmbH  
(Opponent) Tübinger Strasse 123  
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**Representative:** Wörz, Volker  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 13 March 2009  
maintaining European patent No. 1461565 in  
amended form pursuant to Article 101(3)(a) EPC.

**Composition of the Board:**

**Chairman:** U. Krause  
**Members:** G. Ashley  
K. Garnett

## **Summary of Facts and Submissions**

I. European patent EP-B-1 461 565 concerns a high heat dissipating lighting module. Grant of the patent was opposed on the grounds set out in Articles 100(a) (lack of novelty and inventive step), 100(b) and 100(c) EPC. The opposition division concluded that the patent could be maintained on the basis of the set of claims submitted during the oral proceedings as the second auxiliary request. The decision was posted on 13 March 2009.

II. The above decision was appealed by the patent proprietor, who filed the notice of appeal on 22 May 2009, the appeal fee having been paid on 21 May 2009. A statement containing the grounds of appeal was filed on 22 July 2009.

III. Oral proceedings were held on 19 July 2011.

IV. Requests

The appellant (patent proprietor) requests that the decision under appeal be set aside and that the patent be maintained on the basis of the main request filed during the oral proceedings.

The respondent (the opponent) requests that the appeal be dismissed.

V. Claims

Claim 1 of the main request reads as follows:

"1. A high-heat-dissipation lighting module (1) of the type comprising  
a solid-state light source (2),  
a supporting plate (3) carrying the source,  
a lens (4) extending along an axis (A) of symmetry of the lens, and  
a supporting structure (9) having cooling windows (27), and by which the lens is supported so as to project from the plate (3);

characterized in that

each module comprises a single lens (4) facing a source (2), and a supporting structure (9),  
and in that the supporting structure (9) of each module (1) comprises a number of supporting members (25) projecting from a peripheral edge (26) of the lens (4) in a direction substantially parallel to said axis (A) and  
for fitting the lens (4) directly to the plate (3) and in front of the source (2);  
said supporting members (25) being spaced apart and separated from one another by said cooling windows (27)."

Dependent claims 2 to 15 relate to preferred embodiments of the module of claim 1.

VI. Prior Art

Of the documents cited in the decision of the opposition division and by the respondent, only EP-A-0 585 186 (E5) is relevant for this decision.

VII. Submissions of the Parties

The main arguments of the parties are summarised as follows:

(a) Article 100(b) EPC

The respondent submitted that the invention defined in claim 1 is not disclosed sufficiently to enable the skilled person to carry it out. It argued that the claim is directed to "a heat dissipation module comprising a solid state light source", whereas in the characterising part, reference is made to "each module", implying a plurality of modules and lenses. The inconsistency means that the skilled person is unsure as to how the module should be made.

The appellant is of the opinion that this may be a clarity issue, but nevertheless the patent specification provides sufficient information for the skilled person to carry out the invention.

(b) Novelty

The opposition division concluded that claim 1 of the main request lacked novelty with respect to E5.

The appellant submitted that E5 does not disclose a high heat dissipation lighting module. The teaching of E5 concerns the protection of a LED mounted on a printed circuit board by encapsulating it in a plastic enclosure; there is no discussion of the problem of heat dissipation and how it might be solved. Although the side walls of the plastic enclosure are provided with vents, their function is to allow air to escape when the enclosure is being filled with sealant, and not to provide ventilated cooling. The conventional way of dissipating heat from a component on a circuit board is to mount it on a heat-conducting backing plate, and there is nothing to suggest that this is not the means employed in E5.

The respondent submitted that E5 discloses a lighting module (an optically active integrated circuit comprising an LED) which has high heat dissipation by virtue of the vents located in walls of the plastic enclosure. The respondent emphasised that filling the plastic enclosure with a sealant material is optional, and that the vents would inevitably act as cooling windows. Even when filled with sealant material, the vents would nevertheless provide a cooling effect by providing a conductive path for the heat; besides, the definition of the lighting module in claim 1 also allows for filling with sealant material. Should claim 1 be upheld, an unreasonable situation would arise, whereby the patent proprietor would be able to restrict manufacture of microelectronic devices of the type described in E5.

## Reasons for the Decision

1. The appeal is admissible.
2. Added Subject-Matter (Article 123(2) and (3) EPC)
  - 2.1 Claim 1 of the application as originally filed defined "a lens (4)". During examination this feature was amended so that granted claim 1 reads "a lens (4) extending along an axis (A)". The opposition division considered that the amendment extended the claimed subject-matter beyond the content of the originally filed application (WO-A-03/048637), since in its view "along an axis (A)" includes any axis and this had not been disclosed in the application (see page 2, first paragraph of the minutes of the oral proceedings before the opposition division).
  - 2.2 Present claim 1 has been redrafted to define "a lens (4) extending along an axis (A) of symmetry of the lens". It is clear from the original application that axis (A) is an axis of symmetry of the lens, and is referred to as such in dependent claim 4 and on page 5 (line 2) and page 6 (line 3). The amendment is therefore supported in the original application, and by restricting the term to an axis of symmetry, the scope of the claim is narrowed. The amendment thus meets the requirements of Articles 123(2) and (3) EPC.
3. Sufficiency of Disclosure (Article 100(b) EPC)

This objection arises from the fact that claim 1 is directed to "a heat dissipation module comprising a solid state light source", whereas in the

characterising part, reference is made to "each module", implying a plurality of modules and lenses.

This, however, is an issue of clarity rather than sufficient disclosure of the invention, as is set out in section 14 of the contested decision. The Board agrees with the conclusion reached by the Opposition Division that in light of the description, the examples and the figures, the skilled person would have no difficulty in carrying out the invention. The contradiction in the claim does not mean that the information in the patent specification as a whole is insufficient.

4. Novelty (Article 54 EPC)

4.1 The opposition division and the respondent are of the view that the subject-matter of claim 1 lacks novelty in light of E5.

4.2 The invention of E5 is in the context of electronic optical imaging systems, as employed in compact cameras (see column 1, lines 15 to 27), and relates to optically active electronic devices mounted on a printed circuit substrate. The devices are located within a plastic enclosure which holds a lens at a distance from the device.

The invention is primarily described in respect of the device being a photosensitive semiconductor element, whereby the lens is used to focus an image on such an element. However, the document makes it clear that the device can also be an LED or other light emitting device (see column 9, lines 53 to 58), and that the

lens can be used to focus light emitting from such a device (column 1, lines 5 to 11). It is the latter embodiment that is relevant for the issue of novelty.

- 4.3 The respondent argues that E5 discloses a high heat dissipation lighting module because the plastic enclosure containing the lens covers the LED and is provided with vents or windows located in the side walls. These vents allow for heat dissipation in the same manner as the cooling windows of claim 1.
- 4.4 According to E5 the vents are there to allow air to escape when the enclosure is filled with a sealant material such as resin (column 9, lines 17 to 22). The Board agrees with the respondent that filling the enclosure is optional (column 5, lines 13 to 15) and that some heat from the LED can be dissipated via the vents when no sealant is present. However, the main point here is whether or not E5 discloses a "high heat dissipation lighting module" in the sense of claim 1.
- 4.5 The opposition division argued that "high heat dissipation" is a relative expression without a well recognised meaning, hence the arrangement in E5 also leads to "high" heat dissipation (see the first paragraph on page 9 of the contested decision). The Board's view is that, although this expression is relative, it is not without significance. High heat dissipation implies that the lighting module is a high powered lighting module such as a car lamp where heat dissipation is a major problem, in contrast to the miniaturised lighting module of E5.

- 4.6 It is necessary to consider the complete teaching of E5. The module of E5 relates to miniaturised optical devices, such as are found in cameras (see column 9, lines 55 to 58 and column 1, lines 15 to 22 and 35 to 38), and addresses the problem of how to provide a protective lens assembly on a printed circuit substrate. Heat dissipation is not mentioned at all in E5, and there is nothing to suggest that it would be a particular problem in such a miniaturised assembly. As argued by the appellant, there is no indication that any measure should be taken beyond a conventional means for heat extraction. Although the vents in the enclosure are capable of dissipating some heat, it is clear that that they have not been installed for this reason, particularly as they can be blocked by sealant resin.
- 4.7 The respondent argues that if claim 1 were to be allowed, the patent proprietor would be in a position to restrict manufacture of electronic components such as those described in E5. This, however, is not the case, as claim 1 concerns a high heat dissipation lighting module, whereas E5 does not (see point 4.5 above).
- 4.8 In summary, there is nothing in E5 to suggest that the module is built with high heat dissipation in mind or this might be an issue; consequently, "a high heat dissipation lighting module" is not disclosed in E5 and the subject-matter of claim 1 is novel.

5. Remittal

Other issues, in particular inventive step, have not been dealt with by the opposition division. In the circumstances both parties have agreed that the case be remitted to the opposition division for further consideration.

**Order**

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

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chairman:

A. Counillon

U. Krause