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**Datasheet for the decision  
of 29 February 2012**

**Case Number:** T 2475/09 - 3.2.03

**Application Number:** 98903263.6

**Publication Number:** 904510

**IPC:** F21V 7/00, F21S 8/08

**Language of the proceedings:** EN

**Title of invention:**  
Luminaire

**Patentee:**  
Koninklijke Philips Electronics N.V.

**Opponent:**  
Siteco Beleuchtungstechnik GmbH

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 56

**Relevant legal provisions (EPC 1973):**  
-

**Keyword:**  
"Inventive step (yes)"

**Decisions cited:**  
G 0007/95

**Catchword:**  
-



Case Number: T 2475/09 - 3.2.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.03  
of 29 February 2012

**Appellant:** Siteco Beleuchtungstechnik GmbH  
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**Respondent:** Koninklijke Philips Electronics N.V.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 14 October 2009  
rejecting the opposition filed against European  
patent No. 904510 pursuant to Article 101(2)  
EPC.

**Composition of the Board:**

**Chairman:** U. Krause  
**Members:** G. Ashley  
I. Beckedorf

## Summary of Facts and Submissions

I. European patent EP-B1-0 904 510 concerns a luminaire that is used, for example, for illuminating sports grounds, roads or the facades of buildings. The granted patent was opposed for lack of inventive step (Article 100(a) EPC). The opposition division concluded that the claimed subject-matter was inventive in light of the cited prior art, and hence decided to reject the opposition. The decision was posted on 14 October 2009.

II. The opponent (the appellant in this case) filed notice of appeal on 22 December 2009, paying the appeal fee on the same day. A statement containing the grounds of appeal was filed on 24 February 2010.

III. Oral proceedings were held on 29 February 2012.

IV. Requests

The appellant requested that the above decision be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed.

V. Claims

Granted claim 1 reads as follows:

"1. A luminaire comprising:

a concave reflector (1) with a plane of symmetry (2) and an optical axis (3) having an optical center (4) lying in said plane (2);

a light emission window (5) tangent to the reflector (1) and transverse to the plane of symmetry (2);

means (6) for accommodating an electric lamp transversely to the plane of symmetry (2), with an elongate light source of said lamp in the optical center (4);

a light-reflecting screen (7) extending along the optical axis (3), transverse to the plane of symmetry (2), and reaching up to in the light emission window (5),

which reflector (1) comprises several plane facets (10,10') which in their widths  $w$  are bounded by first, mutually substantially parallel, substantially flat planes (8) perpendicular to the plane of symmetry, and which in addition in their lengths  $l$  are bounded by second substantially flat planes (9) which arrange the facets into rows (11,11') which extend along the plane of symmetry,

characterized in that

the first substantially flat planes (8) enclose an acute angle with the light emission window (5), and the screen (7) prolongs the reflector (1) up to in the light emission window (5)."

Dependent claims 2 to 15 concern preferred embodiments of the luminaire of claim 1.

VI. Prior Art

The following documents were cited in the contested decision and are of relevance to this decision:

E1: DE-A-1 904 982  
E2: US-A-4 349 866  
E3: US-A-5 544 030  
E4: DE-A-2 144 300  
E8: DE-A-43 23 422

The appellant filed the following documents together with the grounds of appeal:

E10: US-A-2 058 548  
E11: Extract from the catalogue "Lichtprogram '95/96" from Osram.  
E12: Extract from the catalogue "Außenbeleuchtung Katalog'92" from Siemens.  
E13: Extract from the catalogue "Philips Licht" "Bildpreisliste Leuchten '95" from Philips Lighting.

VII. Submissions of the Parties

(a) Admissibility of Documents E10 to E13

Documents E10 to E13 were first filed with the grounds of appeal. The appellant explained that E10, with a publication date of 1934, had not been revealed by the original search, but was found by chance after the first instance proceedings had taken place. E10 is more relevant than existing documents on file, and addresses the conclusion of the opposition division that E1 is

not the closest prior art for assessing inventive step, hence should be admitted into the proceedings.

Documents E11 to E13 are submitted as evidence of the general knowledge of the skilled person, and are more relevant than the existing documents on file regarding the structural features of the lamp.

The respondent emphasised that documents E10 to E13 were filed very late, and that the test is not whether they are more relevant than the documents already in the proceedings, but whether they would *prima facie* change the decision; since this is not the case, they should not be admitted into the proceedings.

(b) Novelty

The Appellant's Case:

During the oral proceedings before the opposition division, the appellant submitted that the luminaire of claim 1 lacked novelty over E2. Given that the ground of novelty was raised late in the proceedings and was not clearly relevant, the opposition division decided not to admit it into the proceedings. However, the appellant has raised the issue again in the grounds of appeal, arguing that E2 discloses a luminaire falling within the definition given in claim 1, and in particular having the following features:

- an optical axis parallel to reflected rays (60) which passes through the light source (34);

- the elongate light source is located at the optical centre, since the light rays emitted by source (34) in Figure 3 are reflected as a parallel bundle (60);
- the reflector (46) is formed from several plane facets, which are arranged in rows numbered 1 to 8 and 9 to 11, as shown in Figure 3. The relative position of the rows is not defined in claim 1, and in particular, there is no requirement in claim 1 that they must lie next to each other. Hence the arrangement shown in Figure 3, in which the rows lie behind each other, falls within the scope of the claim;
- the endplates (30) in Figure 2 arrange the facets into rows, and thus correspond to the second substantially flat planes (9) of claim 1.

The Respondent's Case:

The respondent submitted that novelty was a late-filed, new ground and should not be admitted into the procedure. Notwithstanding this objection, the claimed luminaire differs in terms of the following features:

- there is no optical axis, since the reflected light rays leave the lamp in different directions;
- unlike the claimed luminaire, the lamp (34) of E2 is not positioned at the focal point, since this lies outside of the lamp at point (56) in Figure 3;
- the facets 1 to 8 and 9 to 11 are arranged in a single row, albeit with a gap between the two groups;

- the flat planes (30) shown in Figure 2 delimit the borders of a single row of facets, and hence do not correspond to the second substantially flat planes (9) of claim 1 which arrange the facets into multiple rows;
- claim 1 requires that the facets are bounded in their widths by first substantially parallel planes (8), which enclose an acute angle with the light emission window. In E2 the facets 1 to 11 are at differing angles (see Figure 4), which means that they are not bounded by substantially parallel planes, and they do not form an acute angle with the emission window;
- the screen (40) does not prolong reflector (46) in the same way that screen (7) of claim 1 does, as glass lens (42) in E2 causes an optical interruption;

(c) Inventive Step

During the oral proceedings before the Board, the appellant identified all the attacks it wished to rely upon, which are summarised as follows:

(i) Document E10 and General Knowledge

Appellant's Case:

The appellant submitted that the claimed subject-matter lacked an inventive step with respect to E10 read in light of the general knowledge of the skilled person.

E10 is an old document from 1936, which discloses a floodlight having a concave reflector (referred



to in E10 as a projector) having a plane of symmetry and an optical axis as defined in claim 1. Although not explicitly mentioned, the floodlight of E10 has a light emission window, which in Figure 1 extends from right edge of reflector 10 to the screw 24, and which is tangent to the projector.

The projector of E10 comprises multiple plane facets, which result in a divergent beam of light without a precise optical axis. The light beam of the disputed invention must have the same characteristics, as it originates from the same type of reflector/projector.

Reflector (10) corresponds to the light-reflecting screen of claim 1, and extends along the optical axis in the same way as the screen of the patent.

The spiral filament of the bulb is shown in Figures 1 and 6 as an elongated light source, however it is arranged along the plane of symmetry and not transverse as defined in claim 1.

The floodlight E10 is provided with a heated filament light bulb of the type commonly used in the 1930's, hence the problem faced by skilled person starting from E10 is to adapt the floodlight it for use with modern light sources.

It is well known that for floodlights the greatest efficiency is achieved with elongated light sources mounted transverse to the plane of symmetry of the lamp. Given that it is a simple

workshop modification to adapt the lamp of E10 so that this type of light source can be fitted, the claimed subject-matter lacks an inventive step.

Respondent's Case:

The respondent submitted that there are many differences between the luminaire of claim 1 and that of E10, in particular:

- it is unclear where and how to define the light emission window; if it is considered to be edge (25) in Figure 1, then it is not tangent to the reflector (projector), as the reflector extends through the light emission window (to adjusting screw (24) in Figure 1;
- reflector (10) does not prolong the reflector (projector), as shell (11) forms an interruption, and does not extend along the optical axis, but is at an angle of about 15°;
- the plane facets are not bound by substantially flat planes, but by curved lines (Figure 2);
- the light source is not an elongated light source, but has a spherical bulbous shape, which can be considered to be a point-like source.

There is no indication, without use of hindsight, to replace the bulb of E10 with an elongated light source transverse to the plane of symmetry. Faced with the objective problem as defined by the appellant, the obvious modification would be to

use a single-ended discharge lamp, which would require minimal alteration of the bulb fitting, and which would not require re-shaping the lamp. Even if a double-ended elongated light source was used, there is no incentive to locate it transverse to the plane of symmetry, as it can be orientated in the plane of symmetry, as shown in Figures 1 and 6 of E10. The claimed luminaire thus has an inventive step with respect to E10.

(ii) Documents E3 and E4

E3 is defined in the disputed patent as being the starting point for the invention. The appellant submitted that the claimed luminaire differs only in terms of the arrangement of the screen, namely that it is within the reflector in E3, whereas according to claim 1 it prolongs the reflector up to the light emission window. The objective problem to be solved is to improve the light distribution transverse to the plane of symmetry of the luminaire. The technical effect of the claimed screen is to counteract the emission of undesirable stray light. To provide an external screen, as defined in claim 1, to realise this effect is an obvious measure for the skilled person. A typical example of such a screen is given in E4 (page 12, second paragraph and Figure 1). Although the screen of E4 is elongated, whereas that of E3 is concave, the skilled person would be easily able to adapt the screen for the luminaire of E3.

The respondent argued that the screen of E3 is located internally and there is no indication that an additional, external screen should be mounted to provide further protection against stray light. In particular it is not obvious to combine the disclosures of E3 and E4, since E3 concerns a concave reflector, whereas that of E4 is elongated.

(iii) Document E2 with E10 or E8

The appellant alleged a lack of novelty with respect to E2, however, should it be considered that E2 does not disclose multiple rows of facets, the appellant submitted that there would be a lack of inventive step. Starting from E2, the objective problem to be solved is how to control the distribution of light perpendicular to the plane of symmetry. Arranging multiple rows of facets along the plane of symmetry is an obvious solution to this problem, as for example shown in E10 (figure 5) or E8 (Figures 2 and 3).

The respondent submitted that it is not obvious to combine the teachings for an elongated light source (E2) with those for non-elongated light source (E10). Given the number of differences between the claim and E2 outlined above, several adjustments have to be made to the luminaire of E2 for which E10 either provides no indication or teaches an alternative solution. Likewise, introduction of the features shown in Figures 2 and 3 of E8 into the luminaire of E2 would not result in the claimed subject-matter.

(iv) Document E1

E1 discloses a symmetrical luminaire, which the appellant saw as a realistic starting point for assessing inventive step, given that the disputed invention also starts from a symmetrical luminaire, namely that of E3. The luminaire of claim 1 differs from E1 in that the light-reflecting screen extends along the optical axis to prolong the reflector up to the light emission window. Starting from E1, the problem to be solved is to create an asymmetric beam of light; the obvious solution is to use half of the luminaire of E1 and to provide an extended reflector as shown in E2 or E4.

The respondent submitted that the symmetrical luminaire of E1 is not an appropriate starting point for the invention, and that it is only with hindsight that the skilled person would take half of the luminaire of E1 and then combine the other half with the teachings of E2 or E4.

## **Reasons for the Decision**

1. The appeal is admissible.
2. Admissibility of the Late-Filed Documents E10 to E13
  - 2.1 E10 was submitted by the appellant in reaction firstly to the conclusion of the opposition division that E1 was not the closest prior art, and secondly to the view of the respondent that E3 is the closest prior art. The

respondent argues that, for a late-filed document to be admitted into the proceedings, it must *prima facie* change the decision. However, it is not possible to know in advance if a document will have this effect, hence it is sufficient that a late-filed document *prima facie* has reasonable potential to influence the decision. E10 was filed with the grounds of appeal in reaction to the conclusion of the opposition division, and it does have the potential to change the decision; hence E10 is admitted into the proceedings.

2.2 E11 concerns different types of light sources and was submitted as evidence of the knowledge of the skilled person. The Board accepts that the skilled person is aware of different light sources, hence it is not necessary to admit this document into the proceedings.

2.3 E12 and E13 relate to extracts from sales catalogues for luminaires. Although the products shown appear to be similar to luminaire of the disputed patent, it is not possible to derive details of the features of the luminaires shown in the catalogues, hence these documents are not admitted into the proceedings.

3. Novelty (Article 54 EPC)

*Consideration of Novelty as a Ground of Opposition:*

3.1 Part of the appellant's case made out in the grounds of opposition was that the claimed luminaire lacked inventive step with respect to E1 and E2. During the oral proceedings before the opposition division, the appellant submitted that the luminaire of claim 1 actually lacked novelty over E2. Given that the ground

of novelty was raised late in the proceedings and was not clearly relevant, the opposition division decided not to admit it into the proceedings.

3.2 The appellant again raised issue of novelty with respect to E2 in the grounds of appeal; the respondent objects to the introduction of lack of novelty into the appeal proceedings.

3.3 As submitted by the respondent, the ground of lack of novelty is indeed a fresh ground for opposition. However, in assessing inventive step with respect to E2, it is necessary to establish differing features between the claimed subject-matter and that of E2. Hence the issue of novelty must nevertheless be considered in the context of deciding on the ground of lack of inventive step (see G 7/95 Headnote).

*Assessment of Claim 1 with Respect to E2:*

3.4 According to claim 1, the elongated light source is located at the optical centre of the reflector; the optical centre is said in paragraph [0034] to be the focal point of the reflector. However, the light source of E2 is not located at the focal point (56), as this lies at some distance from the luminaire.

3.5 The facets of E2 are arranged into groups, of which 1 to 8 and 9 to 11 are specifically identified. These groups are spaced apart, which according to the appellant means that they are arranged into multiple rows. However, the skilled person on a normal reading of E2 without further elaboration, and on seeing the arrangement in Figure 2 of E2, would understand that

the facets lie in a single row, albeit that they are spaced apart. In the other hand, when claim 1 is read in light of the description and drawings of the patent it is clear that the rows of facets lie alongside each other.

3.6 Claim 1 also requires that the facets are bounded in their widths by first substantially parallel planes (8). As submitted by the respondent, in E2 the facets 1 to 11 are at differing angles (see Figure 4), meaning that they are not bounded by substantially parallel planes, and they do not form an acute angle with the emission window, as defined in the characterising part of the claim.

3.7 Hence there are several differences between the claimed subject-matter and that of D2.

#### 4. Inventive Step (Article 56 EPC)

##### 4.1 Document E10 and General Knowledge

4.1.1 The disputed patent relates to a luminaire for lighting the ground or the side of a building (see paragraph [0026] of the patent). Document E10 is concerned with a similar luminaire, namely a floodlight unit in which a reflector directs light from a source to a specific area. It is thus an appropriate starting point for assessing inventive step.

4.1.2 The unit of E10 has a symmetrical concave reflector (referred as a "projector") with an optical centre (the focus F of the projector) which lies in the plane of symmetry of the projector (see Figure 5). Although a



light emission window is not specifically referred to in E10, it must correspond to a line running from the right edge of reflector (10) to the lower end of the reflecting surface (16) close to adjusting screw (24) (see Figure 1), as argued by the appellant. This light emission window is transverse to the plane of symmetry of the projector, and is also at a tangent to the projector in that it intercepts the projector in the same manner as the light emission window (5) intercepts the reflector (1) of the disputed invention (compare Figure 1 of E10 with Figure 3 of the patent).

4.1.3 The light reflecting screen (10) is located transverse to the axis of symmetry and extends to the light emission window (see Figure 1 of E10). The respondent submitted that the reflecting screen of E10 does not extend along the optical axis, as Figure 1 clearly shows it to be at an angle greater than the 5° divergence allowed for in the patent (paragraph [0035]). It is, however, the function of the reflecting screen of both the disputed invention and E10 to avoid the emission of stray light, but not to intercept the light rays that are reflected directly from the concave reflector, ie the parallel rays shown in Figure 1 of E10. The expression "along the optical axis" in claim 1 does not mean parallel to the optical axis, as there may be a 5° divergence. Hence, the reflecting screen (10) of E10 also extends "along the optical axis" in the sense of the screen of claim 1 as, despite its divergence from the optical axis, it fulfils the same function in the same way.

4.1.4 The projector of E10 comprises plane facets (16), which in their widths are bounded by first parallel, flat

planes perpendicular to the plane of symmetry, and in their lengths by second flat planes extending along the plane of symmetry (see edges (14) and (15) in Figure 3). The first planes, which correspond to the widths of the facets defined by edges (14), form an acute angle with the light emission window (this can be derived by considering Figure 1 in combination with Figures 2 and 3).

4.1.5 The appellant submitted that the filament (13) of the light bulb of E10 is to be considered as an elongated light source. The Board, however, is of the view that the skilled person reading E10 in a conventional manner would recognise the spherical light bulb shown in the Figures as being a point-like light source, as submitted by the respondent, rather than an elongated light source.

4.1.6 Consequently, the claimed luminaire differs from that of E10 only in terms of the light source, ie the claim 1 requires an elongate light source located transversely to the plane of symmetry rather than the bulb of E10.

4.1.7 Document E10 was published in 1936, so starting from this document, the objective problem to be solved is, as submitted by the appellant, to provide the lamp with a more efficient, modern light source.

4.1.8 The appellant argues that it is well known that the most efficient light source for a floodlight is elongated and that it is obvious to install such a light source transverse to the plane of symmetry of the

unit of E10. The Board disagrees for the following reasons.

Firstly, it is not apparent how an elongated light source could be installed in practice. The lamp of E10 has a circular light bulb holder (shell 11) suitable for the conventional light bulbs of the 1930's. It would not be straightforward to modify such a fitting for an elongated light source having electrical contacts at both ends and which is to lie transversely to the plane of symmetry. The obvious step would be to replace the bulb (12) by a similar, but more efficient light source having electrical contacts at one end which, like bulb (12), could be attached to an appropriate mounting in shell (11); this would require minimum modification of the bulb holder (shell (11)) and lamp housing.

Secondly, even if the skilled person were to consider an elongated light source, the simplest way to mount it would be to locate it along the optical axis, as indicated by the orientation of the bulb filament in Figures 1 and 6, as this would also require minimum modification of the lamp housing.

Thirdly, a horizontal elongated light source would not be suitable for producing the desired light distribution, as shown in Figure 5, which requires a point light source located at focal point F.

4.1.9 The positioning of an elongated light source transverse to the plane of symmetry of the reflector is therefore not an obvious step. The claimed luminaire thus has an

inventive step with respect to E10 and the general knowledge of the skilled person.

4.2 Documents E3 and E4

4.2.1 E3 is cited in the disputed patent as being the starting point from which the claimed invention was developed, and discloses a luminaire having all the features of the preamble of claim 1. According to E3, a screen (50) is located within the reflector, transversely to the plane of symmetry and above the optical axis, in order to limit the emission of unreflected light above the reflector axis (column 3, lines 58 to 67). The luminaire of claim 1 on the other hand requires that a screen (7) prolongs the reflector (1) up to the light emission window (5).

4.2.2 The objective problem formulated by the opposition division and the parties is to improve the luminaire of E3 in respect of the light distribution transverse to the plane of symmetry, that is, to reduce the emission of stray light not coming from the reflector.

4.2.3 The appellant submits that it is an obvious measure for the skilled person to provide a screen extending to the light emission window, in order to reduce such stray light. E4 provides an example of such a screen, which could be easily adapted for the luminaire of E3. However, the Board disagrees with the appellant for the following reasons:

4.2.4 Firstly, there is no motivation to add a further, external screen to the luminaire of E3. The internal screen of E3 is effective at blocking a significant

amount of stray light, as acknowledged in the disputed patent (paragraph [0005]). The skilled person wishing to block further stray light would first turn to modifying the screen that is already present in the luminaire of E3, particularly as an additional screen outside of the reflector would also have the effect of reducing the amount of desired reflected light rays.

4.2.5 Secondly, the disclosure of E4 concerns an elongated reflector, ie. one having a completely different shape to that of E3 (compare the reflectors shown in Figure 17 of E3 and Figure 1 of E4). Contrary to the appellant's assertion, it is not clear what shape a screen that extends to the light emission window in E3 would take, or how it could be mounted on the concave reflector - it would require more than a trivial workshop modification.

4.2.6 Consequently, the claimed subject-matter is not obvious starting from E3.

4.3 Document E2

The Board agrees with the respondent that there are several differences between the claimed luminaire and that of E2 (see 3.4 to 3.7 above). Whereas the disputed patent and E10 concern luminaires for flood lighting, E2 concerns a luminaire for indirect lighting of rooms by reflecting light off the ceiling and upper walls (see column 1, lines 5 to 27). Given the disclosure of E10, which is concerned with the same problem as that addressed by the disputed patent, and which also shares the most features in common with the claimed subject-matter, E2 cannot provide a realistic starting point

for assessing inventive step, hence the luminaire of claim 1 is inventive over E2.

#### 4.4 Document E1

The question here is also whether E1 provides an appropriate starting point for assessing inventive step. The claimed luminaire is clearly asymmetric, whereas that of E1 is symmetrical. The appellant says that it is reasonable to assess inventive step from E1, since the disputed patent itself identifies a symmetrical luminaire (E3) as being the starting point for the invention. However, E3 also discloses the formation of an asymmetric beam (column 2, lines 45 to 47) and the presence of screen 50 means that the luminaire of E3 has only one plane of symmetry as does that of claim 1. Thus whereas E3 was a reasonable starting point, as would have been E10, it is unrealistic to consider that the skilled person would have set out from E1. The claimed luminaire is inventive over E1.

**Order**

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

The appeal is dismissed.

The Registrar.

The Chairman:

D. Hampe

U. Krause