Unified Patent Court
Einheitliches Patentgericht
Juridiction unifiée du brevet

UPC - Court of Appeal
UPC_CoA_762/2024
APL_64022/2024
UPC_CoA_773/2024
APL_64706/2024

DECISION

of the Court of Appeal of the Unified Patent Court issued on 5 November 2025

GUIDING PRINCIPLES:

- When examining an allegation of inadmissible broadening, the court may make a finding of its own motion that the skilled person cannot infer a corresponding disclosure from the earlier application. This finding is to be determined on the basis of the skilled person's understanding when reading the earlier application in its entirety.
- If the international application is not in one of the official languages of the European Patent Office (EPO), the content of an application derived from the international application is primarily determined by means of a translation. The requirement to file a translation in the application procedure before the European Patent Office is not a purely formal or procedural requirement. With this translation, the applicant submits to the EPO the application documents in the language of the proceedings, on the basis of which the EPO examines the application and, in the event of amendments to the application documents, assesses the compliance of these amendments with Art. 123
  (2) EPC.
- Since it is in the applicant's own interest that the examination is carried out on the basis of the true content of the application, it can prima facie be assumed that such a translation submitted by the patent applicant himself faithfully reflects the content of the international application in the language of the proceedings of the application.
- In assessing the inadmissible extension, third parties and the court can rely prima facie on the translation of the application filed by the patent proprietor with the EPO and published by the latter. If the patent proprietor claims that this translation is incorrect, he must prove that it is incorrect.

KEYWORDS

inadmissible extension; translation of the content of the international application

APPELLANT (AND PLAINTIFF BEFORE THE COURT OF FIRST INSTANCE)

Seoul Viosys Co, Ltd, Danwon-gu, Ansan-si, Gyeonggi-do, 15429, Republic of Korea

hereinafter also referred to as 'Viosys'

represented by Dr Bolko Ehlgen, lawyer, and other lawyers of Linklaters LLP, Frankfurt am Main, Germany, assisted by Dr Dipl.-Phys. Olaf Isfort, European Patent Attorney at Schneiders & Behrendt, Frankfurt am Main, Germany

INTERVENER FOR THE APPELLANT (AND PLAINTIFF BEFORE THE COURT OF FIRST INSTANCE)

Seoul Semiconductor Co, Ltd, Danwon-gu, Ansan-si, Gyeonggi-do, 15429, Republic of Korea

represented by Dr Bolko Ehlgen and other lawyers from the law firm Linklaters LLP, Frankfurt am Main, Germany

APPELLANT (AND DEFENDANT BEFORE THE CFI)

1. **expert e-Commerce GmbH**, Langenhagen, Germany
2. **expert klein GmbH**, Burbach, Germany

hereinafter jointly referred to as 'expert' and individually as 'expert e-Commerce' and 'expert klein'

represented by Dr Dirk Jestaedt, Rechtsanwalt, KRIEGER MES Partnerschaft mbB, Düsseldorf, Germany, assisted by Bernhard Ganahl, European Patent Attorney, HGF Europe LLP, Munich, Germany

LANGUAGE OF THE PROCEEDINGS

German. With the agreement of the parties, the oral proceedings were conducted in hybrid form, with both German and English being permitted.

PATENT IN SUIT

EP 3 223 320

PANELS AND DECIDING JUDGES

This decision was issued by panel 2:
Rian Kalden, presiding judge and rapporteur Patricia Rombach,
legally qualified judge Ingeborg Simonsson, legally qualified
judge Torsten Duhme, technically qualified judge
Max Tilmann, technically qualified judge

CONTESTED DECISION OF THE COURT OF FIRST INSTANCE

Local Chamber Düsseldorf, decision of 10 October 2024 Reference number of
the Court of First Instance:
ORD_598459/2023 in the main proceedings concerning the infringement action, in ACT_594849/2023 UPC_CFI_483/2023,
ORD_50679/2024 in themain proceedings concerning the counterclaim for declaration of invalidity, in CC_3555/2024 UPC_CFI_483/2023

ORAL HEARING

The hearing took place on 10 July 2025.
The proceedings APL_64022/2024 UPC_CoA_762/2024 and APL_64706/2024 UPC_CoA_773/2024 were heard together (R. 302.3 VerfO).

PRESENTATION OF THE FACTS OF THE CASE

The parties

1. expert klein is part of the expert Handelsgruppe, which is active in 22 countries in the fields of consumer electronics, information technology, telecommunications, entertainment and household appliances. expert klein is responsible in particular for the online presence and e-commerce activities of the expert group of companies in Germany.
2. Expert e-Commerce operates 25 speciality stores under its own management as part of the "expert specialist retail cooperation".
3. The online sale of (inter alia) the challenged design is carried out jointly by both defendants.
4. Viosys is a global full-service provider of LEDs and vertical cavity surface emitting lasers.

The patent in dispute

5. Viosys is the owner of the patent in dispute (hereinafter also referred to as the patent). The patent is a divisional application of the European patent application with application number 12832213.8, which was published under EP 2 757 598 A2, hereinafter referred to as the earlier application (also referred to by the parties as the parent application), pursuant to Art. 153(4) EPC. The earlier application is the European regional phase of the PCT application in Korean with application number PCT KR2012/007358, published under number WO 2013/039344 A2.
6. expert klein submitted the earlier application as Annex B4 in the first instance. This is the English translation of the original Korean PCT application, which was submitted to the European Patent Office at the beginning of the regional phase for the earlier application. On appeal, Viosys submitted the Korean PCT publication of the earlier application as Annex BK1 and an allegedly corrected English translation as Annex BK3.
7. The patent claims the priority of the Korean applications KR20110093396 dated 16 September 2011, KR20120015758 of 16 February 2012 and KR20120052722 of 17 May 2012.
8. The mention of the patent grant was published on 21 July 2021.
9. The patent is in force in the UPCA contracting member states Germany, France, Italy and the Netherlands (hereinafter: territories).
10. The patent has one independent claim and ten dependent claims. Claim 1 of the patent in suit reads as follows:

    1. A light emitting diode, comprising:

    a first conductivity type semiconductor layer (110) formed on a substrate (100);

    a mesa disposed on the first conductivity type semiconductor layer (110), the mesa comprising an active layer (120) and a second conductivity type semiconductor layer (130);

    a reflective electrode (140) disposed on the mesa and configured to be in ohmic-contact with the second conductivity type semiconductor lay- er (130);

a current spreading layer (210) disposed on the mesa and the reflective electrode (140), the current spreading layer (210) comprising a first por- tion configured to be in ohmic-contact with an upper surface of an end portion of the first conductivity type semiconductor layer (110);

a lower insulating layer (200) disposed between the mesa and the current spreading layer (210) as well as the reflective electrode (140) and the current spreading layer (210), the lower insulating layer (200) configured to insulate the current spreading layer (210) from the mesa and the reflective electrode (140); and

an upper insulating layer (220) covering the current spreading layer (210), the upper insulating layer (220) comprising a first hole exposing a second portion of the current spreading layer (210) that is disposed on an upper portion of the mesa;

characterised in that the first conductivity type semiconductor layer is exposed in mesa-etched areas (150) through the lower insulation layer (200) including at an edge of the substrate (100).

11. The invention relates to a light emitting diode, and more particularly to a flip-chip type light emitting diode with improved light output (para [0001]).
12. Under the heading "prior art", the description discloses that LEDs are formed on a substrate and comprise an N-type semiconductor layer, a P-type semiconductor layer and an intermediate active layer. An N-type electrode pad is formed on the N-type semiconductor layer and a P-type electrode pad is formed on the P-type semiconductor layer. For operation, the light-emitting diode is electrically connected to an external power source via the electrode pads. At this point, current flows from the P-electrode pad to the N-electrode pad through the semiconductor layers (Ref. [0003]).
13. In order to improve heat dissipation while preventing light loss through the P-type electrode pad, a flip-chip structure LED is used in the prior art, and various electrode structures have been proposed to support current distribution in a large-area flip-chip type LED. For example, a reflective electrode is formed on the P-type semiconductor layer, and extensions for current propagation are formed on an area of the N-type semiconductor layer exposed by etching the P-type semiconductor layer and the active layer (Ref. [0004]).
14. In conventional techniques, linear extensions are used, which limit the current distribution due to their high resistance. Furthermore, since a reflective electrode is placed only on the P-type semiconductor layer, there is significant loss of light through the pads and the extensions instead of being reflected by the reflective electrode (Ref. [0006]).
15. Under the heading "Technical Problem", the patent specification describes that the invention aims to provide an LED with improved power distribution performance and light extraction efficiency by improving reflectivity (para. [0017] and [0018]).
16. Under the heading "Technical Solution", the patent specification further states that according to one aspect of the present invention, an LED includes a semiconductor layer of a first conductivity type (hereinafter also: first semiconductor layer); a plurality of mesas separated from each other on the first semiconductor layer, each having an active layer and a semiconductor layer of a second conductivity type (hereinafter also: second semiconductor layer); reflective electrodes each disposed on the corresponding mesa region and in ohmic contact with the second semiconductor layer; and a current propagation layer connecting the plurality of mesas and the first semiconductor layer.

mesas and the first semiconductor layer to be electrically insulated from the mesas, the current spreading layer including first openings formed in the upper portions of the mesas to expose the reflective electrodes therethrough, respectively, the current spreading layer further being in ohmic contact with the first semiconductor layer (para. [0021]).

17. The patent specification explains that the LED has improved current propagation performance due to the current propagation layer because the current propagation layer covers the plurality of mesas and the first semiconductor layer (para. [0022]).
18. Under the heading "Advantageous Effects," the patent specification states that embodiments of the invention can provide an LED, particularly a flip-chip type LED, that has improved current propagation performance. Further, the light emitting diode has improved reflectivity, thereby providing improved light extraction performance. In addition, the light emitting diode has a simple structure with a plurality of mesas, thereby simplifying the process of manufacturing the LED (para [0045]).
19. The drawings are then explained in the description. The patent specification contains 36 figures, of which Figures 6, 10, 12, 18, 19 and 24 are shown below.

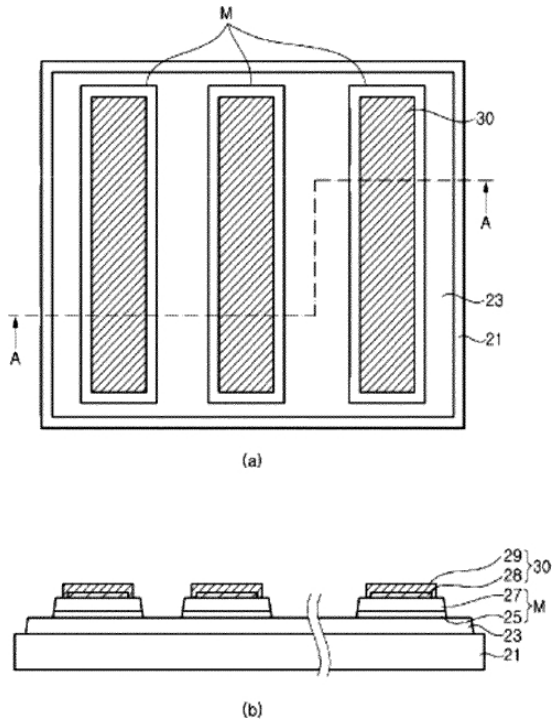


Fig 6

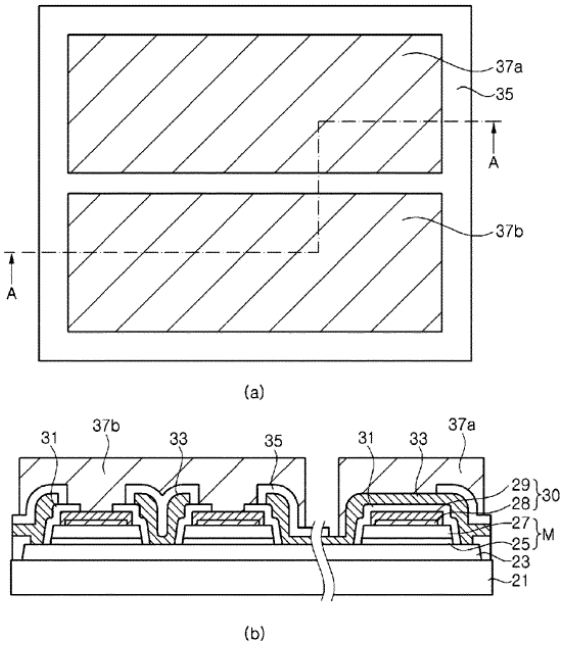


Fig 10

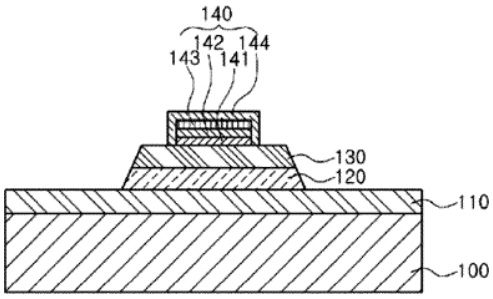


Fig 12

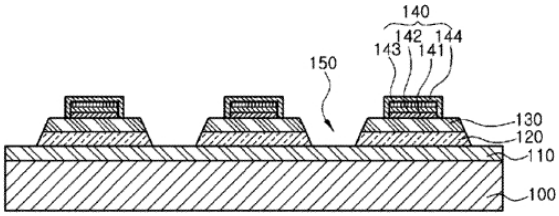


Fig 18

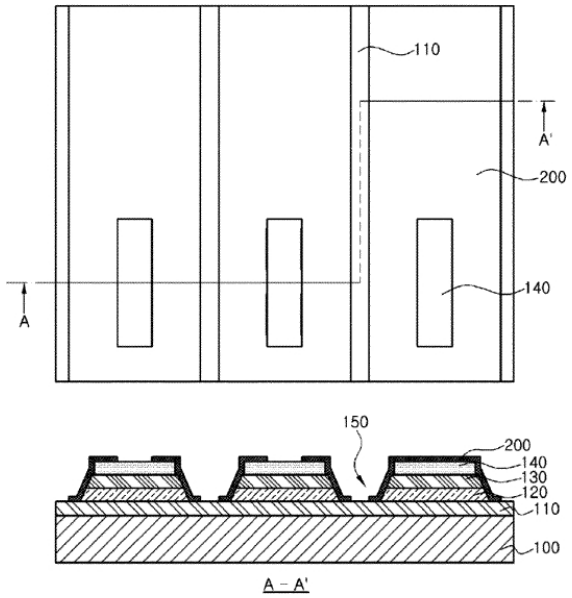


Fig 19

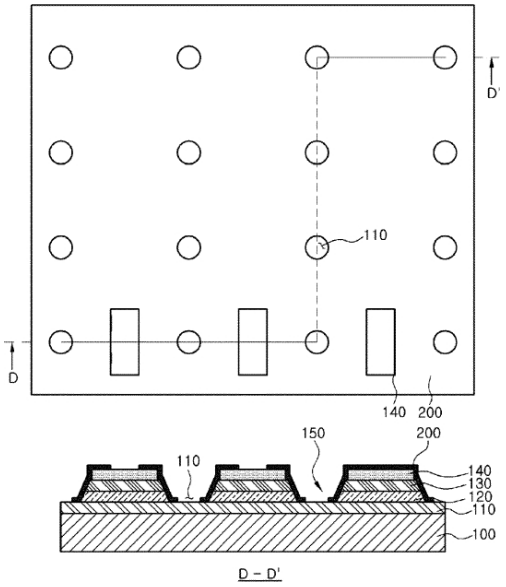


Fig 24

20. In the description, the invention is explained with reference to examples of embodiments. An example is described in paragraphs [0070] to [0086], in which the following is summarised with reference to Figure 10.
21. A first semiconductor layer (23) is formed on a substrate (21). A plurality of separate mesas M are formed on the first semiconductor layer by etching. Each of the mesas M contains an active layer (25) and a second semiconductor layer (27). The active layer (25) is arranged between the first (23) and the second (27) semiconductor layer. In addition, reflective electrodes (30) are located on each of the plurality of mesas M. The reflective electrode (30) covers most of the upper surface of the corresponding mesa M and has substantially the same shape as the mesa M in the plan view.

    A lower insulating layer (31) covers the plurality of mesas M and the first semiconductor layer (23). It has openings (31a) through which the first semiconductor layer (23) is exposed and openings (31b) through which the reflective electrodes are exposed.

    A current propagation layer (33) is formed on the lower insulating layer (31), which covers the plurality of mesas M and the first semiconductor layer (23). The current propagation layer (33) has openings (33a) through which the reflective electrodes are exposed. Through the openings (31a) of the lower insulating layer (31), the current propagation layer (33) can be in ohmic contact with the first semiconductor layer (23).

    An upper insulating layer (35) with openings (35a) and (35b) is formed on the current propagation layer (33). Pads (37a) and (37b) are formed on the upper insulating layer, wherein the first pad (37a) is connected to the current propagation layer (33) via the openings (35a) and the second pad (37b) is connected to the reflective electrodes via the openings (35b).

The challenged embodiment

22. Viosys claims that the SMART.5 32 GB smartphone manufactured by emporia telecom GmbH + Co KG (Austria) and distributed by expert contains a single LED chip (which is installed in connection with the camera module of this smartphone) that infringes the patent.

Background to the proceedings and contested decision

23. Viosys filed an infringement action with the Düsseldorf Local Chamber of the UPC (hereinafter: LKD).
24. Together with its statement of defence, expert klein filed a counterclaim for a declaration of invalidity. Viosys then applied to amend the patent based on several auxiliary requests.
25. In the contested decision, the LKD found that claim 1 contained an inadmissible extension as it (only) covered LEDs with one mesa, whereas the earlier application only disclosed LEDs with multiple mesas. In its decision, the Court of First Instance (A) declared the patent invalid for the territories, (B) rejected the requests to amend the patent, (C) dismissed the infringement action and (D) ordered Viosys to pay the costs of the proceedings. Furthermore, the amount in dispute for each of the actions was set at EUR 500,000 (E) and the upper limit of the reimbursable representation costs for each of the actions was set at EUR 56,000 (F).
26. Viosys filed an appeal in due time.

SUMMARY OF THE PARTIES' CLAIMS:

27. In the notice of appeal, Viosys requests the annulment of parts (A) - (D) of the contested decision. In the proceedings relating to the nullity action (expert's counterclaim), Viosys requests that the requested declaration of nullity be dismissed in its entirety or, alternatively, that the patent be maintained in accordance with one of the auxiliary requests 1-10. In the proceedings relating to the infringement action, Viosys requests that its claims brought before the LKD be granted in full or, in the alternative, on the basis of an auxiliary request deemed admissible by the Court of Appeal. Viosys requests that each expert company bear half of the costs of the infringement action and that expert bear only half of the costs of the counterclaim for a declaration of invalidity, in each case for the proceedings in both instances.
28. expert requests that the appeal be dismissed.

SUMMARY OF THE PARTIES' SUBMISSIONS

29. Viosys argues that the Court of First Instance was wrong to find that claim 1 contains an inadmissible extension. It argues that the patent is legally valid and that independent claim 1 and the dependent claims of the patent are infringed by expert. Furthermore, the patent does not lack novelty or inventive step, as further claimed by expert. Viosys relies on its auxiliary requests in the event that the Court of Appeal considers the patent to be invalid for one of these reasons.
30. In expert's view, the decision of the CFI is correct. Should the Court of Appeal come to a different conclusion, it relies on its further attacks against the validity of the patent based on impermissible extension, lack of novelty and lack of inventive step. expert also disagrees with Viosys' assertion that the patent is infringed.

REASONS FOR THE DECISION

Expert

31. It is undisputed that the person skilled in the art is a graduate engineer or a person with a master's degree in electrical engineering or semiconductor physics from a university of applied sciences who has several years of professional experience in the development of light-emitting diodes (LEDs) and methods for their manufacture.

Interpretation of the claims

32. For the sake of simplicity, the features of claim 1 can be summarised as follows:

1. a **light emitting diode** comprising:	1. **a light emitting diode** comprising
1.1 a first conductivity type semiconductor layer (110)	1.1. a first conductivity type semiconductor layer (110);
1.2 a mesa;	1.2. a mesa;
1.3 a reflective electrode (140);	1.3. a reflective electrode (140);
1.4. a current spreading layer (210);	1.4. a current spreading layer (210);
1.5. a lower insulation layer (200);	1.5. a lower insulation layer (200);
1.6 an upper insulation layer (220);	1.6. an upper insulation layer (220);
2. the **first conductivity type semiconductor layer** (110)	2. **the first conductivity type semiconductor layer (110)**
2.1 is formed on a substrate (100);	2.1. is formed on a substrate (100);
2.2 is exposed in mesa-etched areas (150) through the lower insulation layer (200) including at an edge of the substrate (100).	2.2. is exposed in the mesa-etched areas (150) through the lower insulating layer (200), including at one edge of the substrate (100). (100), is exposed.
3. the **Mesa**	3. the **mesa**
3.1 is disposed on the first conductivity type semiconductor layer (110);	3.1 is disposed on the first conductivity type semiconductor layer (110);
3.2 comprises an active layer (120) and a second conductivity type semiconductor layer (130).	3.2 comprises an active layer (120) and a second conductivity type semiconductor layer (130). conductivity type.
4. **the reflective electrode** (140)	4. the **reflective electrode** (140)
4.1 is disposed on the mesa and	4.1. is disposed on the mesa and
4.2 is configured to be in ohmic-contact with the second conductivity type semiconductor layer (130).	4.2. so that it is in ohmic contact with the semiconductor layer (130) of the second conductivity type. conductivity type.
5. the current spreading layer (210)	5. the **current spreading layer** (210)
5.1 is disposed on the mesa and the reflective electrode (140);	5.1 is disposed on the mesa and the reflective electrode (140);
5.2 comprises a first portion configured to be in ohmic-contact with an upper surface of an end portion of the first conductivity type semiconductor layer (110).	5.2 comprises a first portion configured to be in ohmic-contact with an upper surface of an end portion of the first conductivity type semiconductor layer (110). conductivity type.
6. **the lower insulation layer** (200)	6. the **lower insulation layer** (200)
6.1 disposed between the mesa and the current spreading layer (210) as well as the reflective electrode (140) and the current spreading layer (210), and	6.1. disposed between the mesa and the current spreading layer (210) as well as the reflective electrode (140) and the current spreading layer (210), and and
6.2 is configured to insulate the current spreading layer (210) from the mesa and the reflective electrode (140).	6.2 is configured to insulate the current spreading layer (210) from the mesa and the reflective electrode (140). mesa and the reflective electrode (140).
7. the **upper insulation layer** (220)	7. the **upper insulation layer** (220)
7.1 covering the current spreading layer (210),	7.1 covering the current spreading layer (210);
7.2 comprising a first hole exposing a second portion of the current spreading layer (210) that is disposed on an upper portion of the mesa.	7.2 comprising a first hole exposing a second portion of the current spreading layer (210) that is disposed on an upper portion of the mesa. mesa.

33. The principles applicable to claim interpretation were set out in this Court's order in UPC_CoA_335/2023 (*NanoString v 10x Genomics*, headnote 2, corrected). The patent claim is not only the starting point, but the relevant basis for determining the scope of protection of a European patent under Article 69 EPC in conjunction with the Protocol on the Interpretation of Article 69 EPC. The interpretation of a patent claim does not depend solely on its exact wording in the linguistic sense. Rather, the description and the drawings must always be taken into account as explanatory aids for the interpretation of the patent claim and not only be used to resolve any ambiguities in the patent claim.

The object of the invention

34. In LEDs of the flip-chip type, the contact electrodes of the first and second semiconductor layers are each arranged on the rear side of the chip, while the light extraction from the LED takes place on the opposite side of the chip. The first electrical contact point is located in the mesa etched areas (i.e. outside the mesa), where the current propagation layer is electrically connected to the exposed first semiconductor layer. The second contact point is the reflective electrode located on the mesa. The current supplied to the first pad connected to the current spreading layer leads to a lateral current flow in the first semiconductor layer from the exposed areas of the first semiconductor layer in the mesa etched areas through the active layer in the respective mesa where the light generation takes place and through the second semiconductor layer to the reflective electrode connected to the second pad. This lateral current flow leads to problems with the uniform distribution of the electric current over the entire surface of the active layer, i.e. the lateral expansion of the mesa. This is due to the fact that the light emission is proportional to the current flow in the active layer, which in turn can vary depending on the path travelled by the current due to the ohmic resistance of the various conductive components of the LED. An uneven current distribution leads to uneven light emission, reduced efficiency, localised overheating and a shortened service life of the LED.
35. The aim of the invention is to improve the current distribution and the luminous efficacy of (in particular flip-chip) LEDs.

Features 1.2 and 3 - one mesa

36. The parties disagree on the interpretation of several features, including the meaning of the term "one mesa" (feature 1.2 and feature 3) - in particular whether this also includes several mesas.
37. The LKD rightly found that the term "mesa" is not defined in the patent specification. The LKD uses the definition proposed by Viosys, according to which the term "mesa" in the field of LED technology describes a structure or topography on the surface of the semiconductor material in the form of a raised area formed by etching. The Court of Appeal also applies this definition, but points out that it cannot be inferred that if the etched areas are hole-like, resulting in a continuous area of etched holes, this automatically means that there is only one "mesa".
38. This follows from the fact that - as the parties unanimously emphasised at the hearing - it is common knowledge among experts that the number of mesas and the number of electrodes must match in LED technology, i.e. there must always be one electrode per mesa. According to common sense, it follows that if and insofar as

several electrodes are arranged on a contiguous surface, it can be assumed that this embodiment has a number of mesas corresponding to the number of electrodes.

39. The LKD was of the opinion that claim 1 was limited to one mesa, relying on the use of the singular in feature 4.1, according to which the reflective electrode is to be arranged on the mesa. However, the Court of Appeal agrees with Viosys that "the mesa" in feature 4.1 merely means that the (at least one) reflective electrode is arranged on the (at least one) mesa.

40. Viosys also rightly points out that the wording "comprising" at the beginning of claim 1 indicates that the LED can have further elements, such as further mesas with further electrodes. The skilled person will certainly deduce this possibility from the patent specification, which consistently refers to "mesas" and "a plurality of mesas".

41. The Court of Appeal is therefore of the opinion that "one" mesa is to be regarded as indefinite in the sense of "at least one" and that the term "one mesa" in the patent claim refers to the presence of *at least* one mesa and thus also includes embodiments with several mesas.

Other features

42. The parties also disagree on the interpretation of other features, such as feature 2.2 in conjunction with feature 5.2, in particular on the meaning of "at an edge", as well as on the properties of the current propagation layer of feature 5. However, the interpretation of other features of claim 1 is not decisive for the outcome of the present proceedings, so that the Court of Appeal disregards this.

Inadmissible extension

43. First, the Court of Appeal considers the main ground of Viosys' appeal, i.e. whether the JBI was correct in finding that the patent was invalid for improper broadening because the earlier application did not disclose an LED with only one mesa.

Principles

44. An impermissible extension of the subject matter exists if the subject matter of the granted claim goes beyond the content of the application as originally filed. In order to establish this, the court must therefore first determine what information a person skilled in the art would directly and unambiguously derive from the entirety of the application as filed, when viewed objectively and with reference to the filing date, using his general knowledge. Implicitly disclosed subject-matter is also to be regarded as part of the content of the application, i.e. subject-matter which can be clearly and unambiguously inferred from what is expressly stated.

45. Where, as here, a patent is involved which has arisen from a divisional application, this requirement applies to each earlier application. The subject-matter of claim 1 as granted must therefore not go beyond
(1) the disclosure of the originally filed application of the patent in suit and (2) the disclosure of the original PCT application which entered the regional phase and constitutes the earlier application of the divisional application.

Disclosure of a single mesa - procedural objections

46. The LKD concluded that the earlier application did not disclose an embodiment with a mesa. The LKD noted that, in relation to the embodiments of Figures 6 to 11, 13 to 18 and 19 to 23, the earlier application consistently referred to "a plurality of mesas" and

(reflective) electrodes in the plural. In relation to the embodiment shown in Figures 24 to 26, the term "mesa" is not mentioned in the earlier application, but here too, reference is made throughout to **electrodes** in the plural (e.g. "**each of the** reflective electrodes" or "two reflective electrodes").

"**two** reflective electrodes"). On the basis of Viosys' own undisputed submission that it is common knowledge of the skilled person that each mesa is provided with an electrode, the CFI concluded that the skilled person would understand Figures 24 to 26 as comprising more than one mesa.

47. The Court of Appeal rejected Viosys' procedural objection that LKD had raised this view independently and without notice for the first time at the hearing and should have given Viosys the opportunity to respond in writing before the hearing.

48. The strict correlation between the number of mesas and the number of electrodes was explicitly addressed by Viosys. It is a matter of common sense to conclude from the presence of multiple electrodes that there must therefore be multiple mesas. Although Viosys emphasised (grounds of appeal para. 53, 58) that the skilled person would recognise that a mesa is always covered by a reflective electrode, it argued that the LKD wrongly found a disclosure of multiple mesas in Figure 24 on this basis. The Court of Appeal does not see and Viosys has not explained, let alone substantiated - for example by submitting an expert's report - why the above-mentioned interpretation of the earlier application by the LKD should be "technically absurd", as Viosys claims. The resulting configuration may be suboptimal, as Viosys claims, but that does not make it "technically absurd".

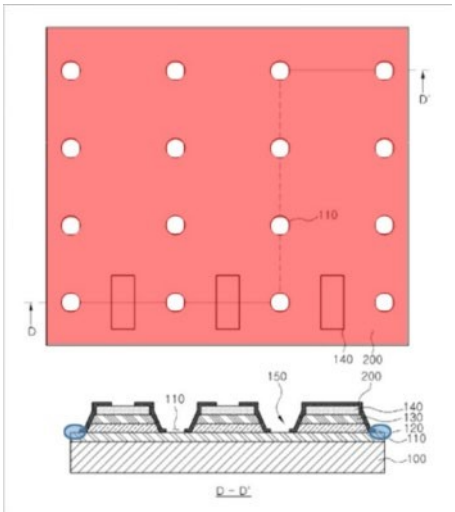
49. Irrespective of the skilled person's general knowledge, the skilled person would have understood from the earlier application that there would be a mesa for each electrode. This is apparent from page 3 (Exhibit B4; page 4, Exhibit BK3'), where it is stated under the heading "Technical solution" that an LED according to one aspect of the invention comprises reflective electrodes, each of which is arranged on the corresponding mesa area (underlining added). In the context of examining expert klein's asserted inadmissible broadening based on the assertion that the skilled person cannot infer an LED with only one mesa from the earlier application, the court may make the finding of its own motion that the skilled person cannot infer a disclosure of an LED with only one mesa from the earlier application. This is to be determined on the basis of the understanding of the person skilled in the art when reading the earlier application (as submitted by expert klein) in its entirety. The Court finds that the translations (B4 and BK3) of the earlier application (BK1) relied upon by the parties do not differ with respect to the above-quoted statement under the heading "Technical Solution" and can therefore consider the above-quoted statement to be a correct reproduction of the corresponding part of the Korean earlier application (BK1). Contrary to what Viosys claims, there is no infringement of Art. 76 UPCA here.

50. During the oral proceedings, Viosys was given the opportunity to address the logical consequence of its own argumentation. Contrary to Viosys' assertion, a party does not have the right to respond to a question or argument *in writing*. For the same reasons, the LKD's decision based on this argument, which was explicitly discussed at the hearing, cannot b e surprising to Viosys.

Disclosure of a single mesa in the embodiment shown in Figures 24 to 26?

51. Viosys challenges the LKD's finding that the earlier application does not disclose a single mesa. Viosys concedes that the embodiments of Figures 2 to 11 and Figures 13 to 23 d i s c l o s e LEDs with multiple mesas. However, it argues that a single mesa is part of the disclosure of the

disclosure of the earlier application, as the further embodiment of Figures 24 to 26 contains only a single mesa. According to Viosy, the LED chip shown in Figures 24 to 26 has only a single plateau, a uniformly raised area. Several hole-like mesa-etched areas have been etched into this plateau in a rectangular pattern, as described on page 22, paragraph 6 of the earlier application. According to Viosys, the red area in Figure 24, commented on below, thus shows the single mesa:



52. The interpretation proposed by Viosys is in direct conflict with its claimed common general knowledge and the understanding of the skilled person when considering these figures and reading the earlier application in its entirety. As noted above (para. 49), on page 3 of the earlier application, the skilled person understands that each electrode corresponds to a mesa, i.e., for each electrode there is a corresponding mesa.
53. On page 22 of B4, it is stated that Figures 24 to 26 are plan views and sectional views of a light emitting diode module having the structure of Figure 12 according to a fourth embodiment of the invention. The application mentions that in Figure 24 a lower figure is a sectional view along the line D-D' of the plan view of Figure 24, wherein the line D-D' is interrupted along a dashed line and shows only a continuous line section. It is then explained that in some areas the reflective electrodes 140 are exposed, in the mesa-etched areas 150 the first semiconductor layer 110 is exposed and, further, that in an area where the reflective electrodes 140 are not exposed, the bottom insulating layer 200 completely shields the reflective electrodes 140. In the paragraph bridging pages 22 and 23, it is mentioned that in the sectional view along line D-D', two reflective electrodes 140 are exposed in an area intersecting the two exposed reflective electrodes 140 (underlining added).
54. When considering F i g u r e s 24 to 26 in the light of this description, the skilled person will recognise that the embodiment of Figures 24 to 26 comprises a plurality of electrodes. On the basis of the application - which describes both exposed and covered reflective electrodes - the skilled person will understand, in combination with the sectional view in Fig. 24, that this sectional view shows two exposed electrodes and a third electrode which is completely covered by the lower insulating layer 200. Since the number of electrodes indicates the number of mesas, the skilled person will recognise that the embodiment of Figs. 24 to 26 has several - three - mesas.
55. This understanding is confirmed by the similarity of the sectional view in Fig. 24 compared to the sectional views in Figs. 9, 10, 19, 20, 21 and 23 (Figs. 9, 20, 21 and 23 are not shown here, but are similar in this respect to the sectional views in Figs. 10 and 19). It is undisputed that these figures show three mesas. Since there is no indication in the patent specification

that the sectional view of Fig. 24 shows only one mesa despite the similarity, the skilled person would understand this figure as also showing the presence of three mesas.

56. The fact that it would be technically possible to make an LED with mesa-etched holes and only one electrode and corresponding mesa, as Viosys has pointed out, does not alter the fact that such an LED (regardless of whether it would disclose the other features of claim 1 of the patent) was not disclosed in the earlier application.

57. For the above reasons, the skilled person understands the embodiment of Figures 24 to 26 as comprising three reflective electrodes. Since Viosys expressly points out that the skilled person always assumes one electrode per mesa (para. 53, 58 grounds of appeal), it follows that the skilled person assumes three mesas. Although it may be incorrect that the small rectangular areas in Figure 24 with reference number 140 do not represent the actual size of the reflective electrodes, but the size of the opening in the lower insulating layer which exposes the reflective electrodes, as Viosys has argued, this does not alter the fact that the skilled person understands that each of these openings exposes a separate reflective electrode.

58. Viosys has stated that such a configuration would be sub-optimal in terms of performance and efficiency. However, the Court of Appeal cannot assume that the skilled person assumes that there is only one mesa for this reason, as Viosys suggests. There is insufficient indication in the earlier application and insufficient substantiation from Viosys to suggest that, contrary to the express reference to two exposed electrodes (and, as the skilled person will understand, the presence of a further electrode (obscured in the sectional view)), the skilled person would nevertheless understand, based solely on his common general knowledge and the general purpose of the invention (to improve current propagation and light output), that the embodiment of Figures 24 to 26 comprises a single mesa. Contrary to what Viosys claims, the mere fact that the embodiment of Figures 24 to 26 is based on the same manufacturing steps as those described for Figures 13 to 18 is not an indication of a single mesa embodiment. This is because it is undisputed that the embodiments of these figures comprise three reflective electrodes.

59. It follows that Figures 24 to 26 of the earlier application do not contain a clear and unambiguous disclosure of a one-mesa embodiment.

Relevance of the earlier Korean application

60. According to Art. 138(1)(c) EPC, a European patent is to be declared invalid if the subject-matter of the European patent goes beyond the content of the application as originally filed or, if (as in the present case) the patent is based on a divisional application, beyond the content of the earlier application as originally filed. Since the earlier application in the present case (BK1) is the regional phase of an international application corresponding to a regular European application (Euro-PCT application) under Art. 153(2) EPC, the (Korean-language) international application is "the earlier application" within the meaning of Art. 138(1)(c) EPC.

61. If, as in the present case, the international application is not in one of the official languages of the European Patent Office (EPO), the content of the earlier application is primarily determined by means of a translation. Annex B4 is such a translation. It is undisputed that Annex B4 is the translation of the earlier application filed by the patent applicant pursuant to Art. 153(4) and R. 159(1)(a) EPC.

62. Contrary to the opinion of Viosys, this is not a purely formal or procedural requirement and does not only serve procedural purposes (grounds of appeal, page 20, para. 66). With this translation, the applicant submits to the EPO

the application documents in the language of the proceedings. On this basis, the EPO examines the (parent) application and, in the event of amendments to the application documents, assesses whether these amendments comply with Art. 123(2) EPC. Since it is in the applicant's own interest that the examination is based on the true content of the (parent) application, it can prima facie be assumed that such a translation submitted by the patent applicant himself

- such as that in Annex B4 - truthfully reflects the content of the international application in the language of the proceedings of the earlier application. The LKD could therefore prima facie rely on Annex B4 when examining expert Klein's allegation of inadmissible broadening, especially since the Korean PCT application was only filed by Viosys at the appeal stage (BK1) and was therefore not part of the proceedings before the LKD. With regard to the use of Annex B4 in the proceedings, the Court of Appeal notes that Viosys also only used Annex B4 in the written proceedings of the first instance when it argued against expert klein's claim of inadmissible extension (which Viosys referred to as "B5" in the duplicate of 27 June 2024 due to an obvious typographical error).

63. It follows that third parties (such as expert klein) and the court can rely on the translation of the application filed by the patent proprietor with the EPO and published by the latter when assessing the inadmissible extension. If the patent proprietor claims that this translation (B4) is incorrect, he must prove that it is incorrect. Since expert klein has explained and substantiated that the subject matter of the patent goes beyond the content of the earlier application based on B4, the court is of the opinion that the burden of proof now lies with Viosys. Viosys must prove that the translation is incorrect and that the subject matter of the patent does not go beyond the content of the earlier application on the basis of the correct translation. In the opinion of the court, this burden of proof is not satisfied by the mere submission of BK3 and the assertion that it is a correct translation. In order to rebut the patent applicant's earlier translation from the earlier application (Exhibit B4), Viosys could have been expected to submit a party opinion on the peculiarities of the Korean language, in particular with regard to expert klein, which disputes that BK3 is a correct translation.

64. Moreover, Viosys' arguments are not convincing. They do not show why BK3 better reflects the content of the earlier application BK1 than B4.

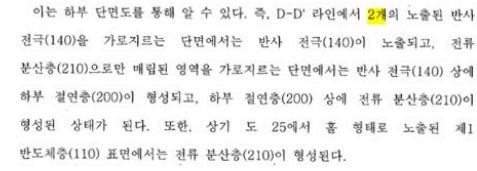
65. On page 31, line 19 of the Korean application, the number "2" is combined with the noun "reflective electrode" in the singular. As Viosys recognises, this inconsistency cannot be translated grammatically correctly. Viosys argues that the translation "closest to what is meant" is "two parts of the reflective electrode 140". On the basis of this translation (submitted as BK3) and the common general knowledge that there can only be one mesa for each electrode, Viosys argues that Figure 24 discloses an embodiment with only one mesa and that the earlier application is to be read in the same way.

66. The Court of Appeal agrees with expert klein that, for the reasons given above in relation to the assessment based on B4 and the sectional view of Figure 24, the skilled person reading BK1 as a whole would not assume that the (Arabic) figure 2 is wrong, as suggested by Viosys, but would rather understand that the word
"electrode" in Korean is to be understood as a reference to the plural. This is reinforced by the fact that in addition to two exposed electrode(s) in Figure 24, the earlier application also refers to electrode(s) completely covered by the lower insulating layer. In view of this, the skilled person understands that in the sectional view of Figure 24, in addition to the two exposed reflective electrodes expressly mentioned, one such covered reflective electrode is shown.

67. There is nothing in BK1 that would lead an expert reading "2 reflecting electrodes" to assume that the singular is meant. The two paragraphs on page 31, lines

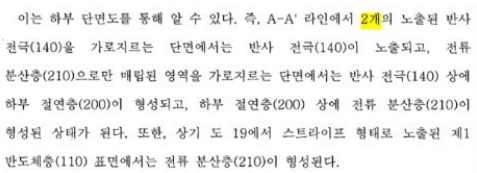
3 to 9 of BK1 to use the term "reflective electrode" in the singular, whereas in Annex B4 the plural is used (page 22, paragraph 9: *"In some areas, the reflective electrodes 140 are exposed, and in the mesa-etched areas 150, the first semiconductor layer 110 is exposed. Further, in a region where the reflective electrodes 140 are not exposed, the lower insulating layer 200 completely shields the reflective electrodes 140").* However, the use of the singular in this paragraph does not necessarily lead the skilled person to the understanding that there is only one mesa. It can also, and indeed very well, be understood to mean that there are separate reflective electrodes, some of which are shown exposed and others covered. Since this is what the skilled person will infer from the sectional view of Figure 24, he will adopt the latter reading. As explained above, the fact that a configuration with more than one electrode (and thus more than one mesa) is suboptimal from a performance and efficiency point of view cannot change this.

68. Furthermore, the comparison of BK3 and B4 and the differences emphasised by Viosys on the basis of BK3' show that the changes proposed by Viosys with regard to the translation of lines 19 to 24 on page 31 of BK1, which relate to Figure 24, are identical to the translation of lines 14 to 21 on page 28, which relate to the embodiment of Figs. 19 and 20, which (undisputedly) shows an embodiment with 3 mesas and thus 3 electrodes. The corresponding text section from BK1 and the proposed translation from BK3 are reproduced below:
Page 31, lines 19 to 24:


이는 하부 단면도를 통해 알 수 있다. 즉, D-D' 라인에서 2개의 노출된 반사 전극(140)을 가로지르는 단면에서는 반사 전극(140)이 노출되고, 전류 분산층(210)으로만 매립된 영역을 가로지르는 단면에서는 반사 전극(140) 상에 하부 절연층(200)이 형성되고, 하부 절연층(200) 상에 전류 분산층(210)이 형성된 상태가 된다. 또한, 상기 도 25에서 홀 형태로 노출된 제1 반도체층(110) 표면에서는 전류 분산층(210)이 형성된다.

~~This can be confirmed through a lower sectional view.~~ This can be confirmed through a lower sectional view. Specifically, in the sectional view taken along line D-D', two parts of the reflective ~~electrodes~~electrode 140 are exposed in ~~a portion intersecting~~portions where the line D-D' intersects the two exposed parts of the reflective ~~electrodes~~electrode 140, ~~and in a portion taken along line intersecting a region buried only by the incurrent spreading layer 210,~~while the lower insulation layer 200 is formed on the reflective ~~electrodes~~electrode 140 and the current spreading layer 210 is formed on the lower insulation layer 200 in a portion where the line D-D' intersects a region buried by the current spreading layer 210. Further, in Figure 25, the current spreading layer 210 is formed on the surface of the first semiconductor layer 110 exposed in a hole shape.

Page 28, lines 14 to 21:


이는 하부 단면도를 통해 알 수 있다. 즉, A-A' 라인에서 2개의 노출된 반사 전극(140)을 가로지르는 단면에서는 반사 전극(140)이 노출되고, 전류 분산층(210)으로만 매립된 영역을 가로지르는 단면에서는 반사 전극(140) 상에 하부 절연층(200)이 형성되고, 하부 절연층(200) 상에 전류 분산층(210)이 형성된 상태가 된다. 또한, 상기 도 19에서 스트라이프 형태로 노출된 제1 반도체층(110) 표면에서는 전류 분산층(210)이 형성된다.

This can be confirmed through a lower sectional view. ~~This can be confirmed through a lower sectional view.~~ Specifically, in the sectional view taken along line A-A', two parts of the reflective ~~electrodes~~electrode 140 are exposed in a portion intersecting the two exposed parts of the reflective ~~electrodes~~electrode 140, and in a portion taken along a line intersecting a region buried only by the incurrent spreading layer 210, the lower insulation layer 200 is formed on the reflective ~~electrodes~~electrode 140 and the current spreading layer 210 is formed on the lower insulation layer 200 . Further, in Figure 19, the current spreading layer 210 is formed on the surface of the first semiconductor layer 110 exposed in a stripe shape.

69. Viosys essentially argues that the skilled person would recognise from the mere use of the phrase "two parts of the reflective electrode" (or better: the Korean equivalent) in the context of Fig. 24, the skilled person would recognise that Fig. 24 refers to an embodiment with an electrode and thus a mesa. However, the Court of Appeal is unable to see how the skilled person could derive from the use of a formulation (the Korean equivalent of Viosys' translation "two parts of the reflective electrode") an indication that the LED shown in Fig. 24 has only one electrode. In the same document, this wording is also used to describe an LED with several mesas and thus several electrodes. This is all the more true in view of the similar sectional views of the two embodiments, as already mentioned in recital 55 above. It follows that the skilled person would understand the inconsistent wording "2 reflective electrodes" as "2 reflective electrodes". Even if the skilled person had doubts, there is no clear and unambiguous disclosure of an embodiment with only one mesa in the earlier application.

Cutting method

70. As a second line of argument that the earlier application also discloses embodiments with only one mesa, Viosys refers to page 12 of the earlier application and claims that in the embodiment example of Figure 10, several strip-shaped mesas are initially provided and that, after the pads 37a, 37b are applied, the chip is split between the mesas according to the description and divided into several individual LEDs, ultimately resulting in LEDs with only one mesa.
71. The corresponding paragraph reads: "Thereafter, the substrate 21 is divided into individual light emitting diode chips, thereby providing final light emitting diodes."
72. This argument is not valid either. Contrary to Viosys' assertion, this paragraph does not state that "the chip is cleaved between the mesas". The earlier application gives no indication of how the cutting process takes place, let alone that it takes place in such a way that the resulting individual LEDs each consist of only one mesa. On the contrary, the immediately following paragraphs describe a single LED (diode in the singular) comprising "the mesas M" or "the plurality of mesas M" or "each of the mesas M". The skilled person will therefore understand that the cutting process results in individual LEDs, each comprising more than one mesa.
73. The Court of Appeal could not find a single reference to an LED with only one mesa in the earlier application that could support Viosys' claim that an LED with one mesa would result after the cutting process. In the absence of a clear indication to that effect in the earlier application and substantiation by Viosys - such as a party expert report - showing that the skilled person necessarily assumes that a single mesa LED is formed after the cutting process, the mere theoretical possibility that a single mesa LED could be formed is not sufficient to constitute a clear and unambiguous disclosure.

One embodiment not shown in the figures

74. Viosys further claimed that the earlier application discloses a further embodiment corresponding to Figures 12 to 23, which is not shown in the figures, with hole-etched mesa regions as an alternative to the strip shape shown in the figures, resulting in a single continuous mesa. However, this is not the understanding of the skilled person, who will realise on reading the entire document that this alternative is in fact shown in Figures 24 to 26 for the following reasons.
75. In relation to the embodiment of Figures 24 to 26, the following is stated in the earlier application on page 22 paragraphs 5 and 6:
"Figure 24 to Figure 26 are plan views and sectional views of a light emitting diode module having the structure of Figure 12 in accordance with a fourth embodiment of the invention. Referring to Figure 24, in this embodiment, mesa-etched areas 150 of Figure 18 are formed in a hole type. Accordingly, a first semiconductor layer 110 is exposed in a substantially circular shape " (underlining added).
76. The reference to Figure 18 is understood by the skilled person here as a reference back to the paragraph that bridges pages 16 and 17. In this paragraph, the etching process is described with reference to the embodiments of Figures 13-18. It is also mentioned that the mesa-etched areas can be strip-like or hole-like:
"Referring to Figure 14, part of the active layer 120 and part of the second semiconductor layer 130 are removed by typical etching. As a result, the first semiconductor layer 110 is partially exposed. Through the etching process, an upper surface of the first semiconductor layer 110 is exposed, and side surfaces of the active layer 120 and the second semiconductor layer 130 are exposed. As a result, the active layer

120 and the second semiconductor layer 130 are partially removed to form trenches and holes through the etching process. In other words, the mesa-etched areas 150 formed from the surface of the second semiconductor layer 130 of Figure 13 to the surface of the first semiconductor layer 110 may be a trench-shaped stripe type or a hole type."

77. With reference to Figure 18, this is repeated on page 19, paragraph 4: "*As described above, the mesa-etched areas 150 may be formed in a stripe type or hole type".*

78. In the earlier application, the embodiments of Figures 19 to 23 and 24 to 26 are then described, each of which shows an example of strip-type or hole-type mesa-etched areas, which is clear from the references to Figure 18 in each case. This is stated on page 20, paragraphs 1 and 2:
"Figure 19 to Figure 23 are plan views and sectional views illustrating a method of manufacturing the light emitting diode having the structure of Figure 12 in accordance with another embodiment of the present invention. Referring to Figure 19, it is assumed that the mesa-etched areas 150 of Figure 18 have a stripe shape. (...)" (emphasis added).
A similar statement is made for Figures 24-26, as cited in para. 75 above.

79. Therefore, an embodiment with a mesa does not result from the disclosure of an embodiment which is not shown in the figures.

Figure 12

80. For the sake of completeness, the Court of Appeal also points out that Fig. 12 cannot be the disclosure of an embodiment with a single mesa, since the earlier application clearly mentions that it is only a *partial view* (see pages 7 and 14, (para. 5) of the earlier application).

Conclusion on the inadmissible extension

81. The Court of Appeal concludes that the LKD's finding that a claim directed to an LED with only one mesa goes beyond the content of the earlier application is correct.

Auxiliary requests

82. The auxiliary requests all relate to embodiments with a single mesa and therefore cannot lead to a legally valid claim. It is therefore not necessary to discuss them.

Further invalidity attacks

83. There is no need to discuss the other invalidity contentions raised by expert klein, its defences to expert's alleged infringement and Viosys' responses thereto.

Infringement claim

84. In view of the invalidity of the patent, there is no need to decide on the alleged infringement of the patent by the challenged embodiment.

Conclusion

85. The conclusion to be drawn from the above is that the patent is invalid due to inadmissible broadening. None of the grounds of appeal lead to a different conclusion. The appeal must therefore be dismissed.

Costs

86. Viosys is to be regarded as the unsuccessful party in the appeal proceedings. It is ordered to pay the costs of the appeal proceedings, both for the counterclaim for a declaration of invalidity and for the infringement action.

DECISION

In the counterclaim for a declaration of invalidity and in the infringement

action: The Court of Appeal

- dismisses the appeal;
- orders Viosys to pay the costs of the appeal proceedings.

Issued on 5 November 2025

Rian Kalden Date: 2025.11.05 09:15:11 +01'00'

Rian Kalden, presiding judge and rapporteur

Patricia Ursula Rombach Digitally signed by Patricia Ursula Rombach Date: 2025.11.05 07:58:55 +01'00'

Patricia Rombach, legally qualified judge

Digitally signed by Åsa Ingeborg Simonsson Date: 2025.11.05 09:12:11 +01'00'

Ingeborg Simonsson, legally qualified judge

TORSTEN DUHME Digitally signed by TORSTEN DUHME Date: 2025.11.05 08:38:40 +01'00'

Torsten Duhme, technically qualified judge

Max Wilhelm Tilmann Digitally signed by Max Wilhelm Tilmann Date: 2025.11.05 07:36:21 +01'00'

Max Tilmann, technically qualified judge