Unified Patent Court
Einheitliches Patentgericht
Juridiction unifiée du brevet

Local Chamber Düsseldorf

UPC_CFI_363/2023

Decision

of the Court of First Instance of the Unified Patent Court
pronounced on October 10, 2024
concerning EP 3 926 698 B1

LEADERSHIPS:

1. If the plaintiff wishes to make a claim against several defendants, he has the choice of suing each defendant individually or bringing an action against several defendants. If the plaintiff chooses the latter, the actions must nevertheless each be dealt with independently. Each defendant conducts its own lawsuit formally and substantively independently of the others, without the respective actions of one defendant causing advantages or disadvantages for the other defendant.

2. If R. 25.1 VerfO requires the filing of a counterclaim for a declaration of invalidity of the patent, provided that the statement of defense includes the assertion that the allegedly infringed patent is invalid, this applies separately to each defendant. This does not exclude the joint filing of a nullity counterclaim by several defendants. However, if individual defendants decide against filing a nullity counterclaim and the counterclaim is therefore expressly only filed by individual defendants, the validity argument is formally excluded for the defendants not involved in the nullity counterclaim. They can therefore not successfully invoke the lack of legal standing in their proceedings. However, as long as the court refrains from separating the proceedings against several defendants, this has no de facto effect.

3. The answer to the question of whether an order or decision should be made dependent on a security to be determined by the court (R. 118.8 VerfO) always requires a case-by-case examination in which the plaintiff's interest in the effective enforcement of its property right must be weighed against the interest in the effective enforcement of possible claims for damages in the event that the judgment is subsequently set aside. The factors to be considered when deciding whether to order the provision of security include the financial situation of the plaintiff, which may give rise to the justified and real concern that a possible claim for damages cannot be enforced and/or enforced at all or only with disproportionate effort. Whether and to what extent such factors exist must be determined on the basis of the facts and arguments presented by the parties.

KEYWORDS:

Isolated nullity counterclaim by individual defendants; direct patent infringement; no security

Plaintiff:

Seoul Viosys Co, Ltd, legally represented by its authorized representatives Chung- Hoon Lee and Young Ju Lee, 65-16, Sandan-ro 163 beon-gil, Danwon-gu, Ansan-si, Gyeonggi-do, 15429, Republic of Korea,

represented by:	Attorney Dr. Bolko Ehlgen, Attorney Dr. Julia Schönbohm, Linklaters LLP, Taunusanlage 8, 60329 Frankfurt am Main, Germany,
supported by:	Patent attorney Dr. Dipl.-Phys. Olaf Isfort, law firm Schneiders & Behrendt, Huestraße 23, 44787 Bochum,
Germany, electronic	Zustelladresse:bolko.ehlgen@linklaters.com intervener:

Seoul Semiconductor Co, Ltd, legally represented by its authorized directors and CEOs Chung-Hoon Lee and Myeong-gi Hong, Building 0: 97-11, Sandan-ro 163 beon-gil, Dan- won-gu, Ansan-si, Gyeonggi-do, 15429, Republic of Korea,

represented by:	Attorney Dr. Bolko Ehlgen, Attorney Dr. Julia Schönbohm, Linklaters LLP, Taunusanlage 8, 60329 Frankfurt am Main, Germany,
electronic	Zustelladresse:bolko.ehlgen@linklaters.com Defendant:

1. **expert e-Commerce GmbH**, legally represented by its managing directors Dr. Stefan Müller and Michael Grandin, Bayernstraße 4, 30855 Langenhagen,

represented by:	Attorney Dr. Dirk Jestaedt, law firm Krieger Mes & Graf von der Groeben Part mbB, Bennigsen-Platz 1, 40474 Düsseldorf,
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with the assistance of:	Patent attorney Bernhard Ganahl, HGF Europe LLP, Neumarkter Straße 18, 81673 Munich,

2. **expert klein GmbH,** legally represented by its managing directors Jens Oerter and Thomas Jacob, Jägerstraße 32, 57299 Burbach,

represented by:	Attorney Dr. Dirk Jestaedt, law firm Krieger Mes & Graf von der Groeben Part mbB, Bennigsen-Platz 1, 40474 Düsseldorf,

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with the assistance of:	Patent attorney Bernhard Ganahl, HGF Europe LLP, Neumarkter Straße 18, 81673 Munich,

STREITPATENT:

European Patent No. 3 926 698 B1

ADJUDICATING BODY/CHAMBER:

Judges of the Düsseldorf Local Court Co-

Judges:

The decision was pronounced with the participation of Presiding Judge Thomas as the judge, the legally qualified judge Dr. Thom, the legally qualified judge Mlakar and the technically qualified judge Sani.

LANGUAGE OF PROCEDURE: German

SUBJECT MATTER: Action for infringement and action for annulment

ORAL NEGOTIATION: September 5, 2024

BRIEF DESCRIPTION OF THE FACTS:

The plaintiff is asserting a claim against the defendants for infringement of EP 3 926 698 B1 (hereinafter: patent in suit). The patent in suit is an (indirect) divisional application of the European patent EP 2 757 598 B1, which was derived directly from EP 2 223 320 B1. It claims the priority of KR20110093396 dated September 16, 2011, KR20210015758 dated
February 16, 2012 and KR20120052722 of May 17, 2012. The European Patent Office published the mention of the grant of the patent in suit with effect (inter alia) for Germany, Austria, Belgium, France, Italy, Luxembourg, the Netherlands and Sweden on January 4, 2023, the plaintiff being the registered proprietor of the patent in suit. The patent in suit is in force in the aforementioned contracting states.

The patent in suit applied for in English is entitled "Light emitting diode". Its claim 1 is in the English language:

> "A light emitting diode comprising:
>
> > a light emitting structure formed on a substrate (100) and comprising a first conductivity type semiconductor layer (110), an active layer (120) and a second conductivity type semiconductor layer (130);
> >
> > mesa-etched areas (150) formed from the surface of the second conductivity type semiconductor layer (130) to the first conductivity type semiconductor layer (110);
> >
> > a reflective electrode (140) formed on the second conductivity type semiconductor layer (130) and including a reflective metal layer (142), a barrier metal layer (144) and a stress relieving layer (143) formed between the reflective metal layer (142) and the barrier metal layer (144), wherein the stress relieving layer (143) has a coefficient of thermal expansion between the coefficient of thermal expansion of the reflective metal layer (142) and the coefficient of thermal expansion of the barrier metal layer

(144);

a lower insulation layer (200) covering an overall surface of the structure formed by the first conductivity type semiconductor layer (110), the active layer (120), the second conductivity type semiconductor layer (130), the mesa-etched areas (150) and the re- flective electrode (140), with the lower insulation layer (200) allowing an upper surface of the reflective electrode (140) to be partially exposed therethrough and further hav- ing openings disposed near an edge of the substrate which allow the surface of the first conductivity type semiconductor layer (110) to be exposed therethrough in the mesa- etched areas (150);

a current spreading layer (210) formed on the lower insulation layer (200) covering the first conductivity type semiconductor layer (110) and being electrically connected to the first conductivity type semiconductor layer (110);

an upper insulation layer (220) formed on the current spreading layer (210), with both the current spreading layer (210) and the reflective electrode (140) being partially ex- posed through the upper insulation layer (220);

a first pad (230) electrically connected to the current spreading layer (210) exposed through the upper insulation layer (220);

and a second pad (240) electrically connected to the reflective electrode (140) exposed through the upper insulation layer (220)."

In the registered German translation, claim 1 is worded as follows:

"Light emitting diode, showing:

a light-emitting structure formed on a substrate (100) and comprising a semiconductive layer (110) of a first conductivity type, an active layer (120) and a semiconductive layer (130) of a second conductivity type;

mesa-etched regions (150) formed from the surface of the semiconductor layer (130) of the second conductivity type to the semiconductor layer (110) of the first conductivity type;

a reflective electrode (140) formed on the semiconductor layer (130) of the second conductivity type and comprising a reflective metal layer (142), a metal barrier layer (144) and a relaxation layer (143) formed between the reflective metal layer (142) and the metal barrier layer (144), wherein the relaxation layer (143) has a coefficient of thermal expansion between the coefficient of thermal expansion of the reflective metal layer (142) and the coefficient of thermal expansion of the metal barrier layer (144);

a bottom insulating layer (200) covering a total surface of the structure formed by the first conductivity type semiconductor layer (110), the active layer (120), the second conductivity type semiconductor layer (130), the mesa etched regions, and the bottom insulating layer (200).
(150) and the reflective electrode (140) is formed, wherein the lower insulating layer (200) allows an upper surface of the reflective electrode (140) to be partially exposed therethrough, and further comprises openings formed in the vicinity of the lower insulating layer (200).

of an edge of the substrate, which allow the semiconductor layer (110) of the first conductivity type to be exposed through them in the mesa-etched regions (150);

a current expansion layer (210) formed on the lower insulating layer (200) covering the semiconductor layer (110) of the first conductivity type and electrically connected to the semiconductor layer (110) of the first conductivity type;

an upper insulating layer (220) formed on the current-expanding layer (210), wherein both the current-expanding layer (210) and the reflective electrode
(140) is partially exposed through the upper insulating layer (220);

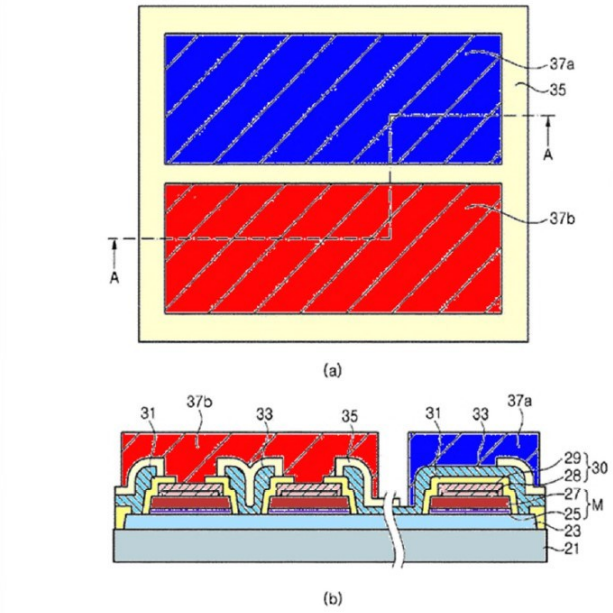
a first pad (230) electrically connected to the current expansion layer (210) exposed through the upper insulating layer (220);

and a second pad (240) electrically connected to the reflective electrode (140) exposed through the top insulating layer (220)."

With regard to the wording of sub-claims 4 to 6 and 9, which are only asserted in the context of "in particular if" claims, reference is made to the specification of the patent in suit.

Figure 10, which is superimposed below and colored by the applicant, explains the invention by means of a preferred embodiment:

【Fig. 10】



A substrate (21) can be seen on which a first conductive semiconductor layer (23) is formed. A plurality of mesas M is formed on the first semiconductor layer, which are separated from one another. Each of the mesas M contains an active layer (25) and a second conductive semiconductor layer
(27). The active layer (25) is arranged between the first conductive semiconductor layer (23) and the second conductive semiconductor layer (27). In addition, there are reflective electrodes (30) on each of the plurality of mesas M. Each of the reflective electrodes (30) has a reflective layer (28) and a barrier layer (29). The lower insulating layer (31) covers the plurality of mesas M and the first semiconductor layer (23) and has lower openings (31a, 31b), which in certain areas form an electrical connection with the first conductive layer (23).

semiconductor layer (23) and the second conductive semiconductor layer (27). A current distribution layer (33) is formed on the lower insulating layer (31), which covers the plurality of mesas M and the first semiconductor layer (23). An upper insulating layer (35) is formed on the current distribution layer (33), on which in turn a first pad (37a) and a second pad (37b) are located (see patent in suit, paragraphs [0069] - [0085]).

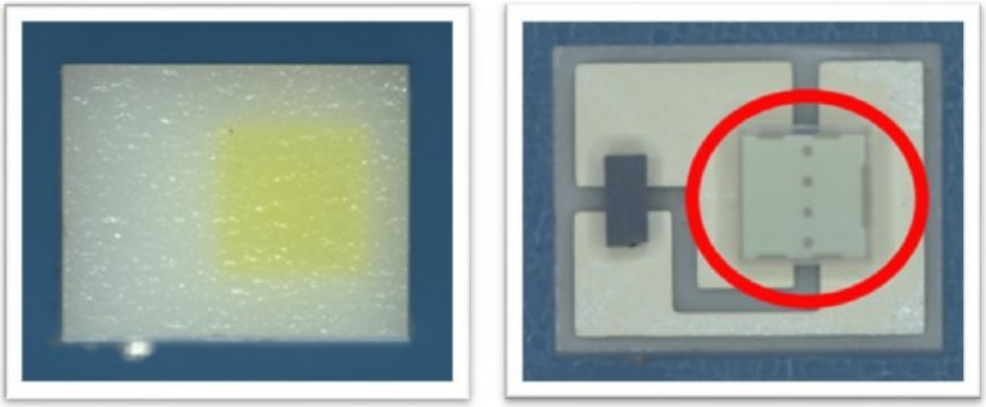
Defendant 1) is part of the expert retail group for consumer electronics, information technology, telecommunications, entertainment and household appliances. Within this structure, it is responsible in particular for the online presence and the e-commerce activities of the expert group of companies in Germany. Defendant 2) is not affiliated under company law with defendant 1) and its group of companies, but operates 25 specialist stores independently as part of the "Expert Fachhandels-Kooperation".

Online sales are carried out jointly by both defendants. When accessing the website www.expert.de, the user is asked to select a suitable specialist store in the expert network based on his location. A corresponding selection leads to an Internet page that can be assigned to defendant 2). According to the legal notice on this website and the information in its legal notice, defendant 1) is responsible for sales via the website as a "service processor". The defendants are also closely involved in the further process of processing orders via the website. For example, the order confirmation, the invoice and the delivery bills each state Defendant 1) in conjunction with Defendant 2). Defendant 1) acts as the contractual partner. However, shipping is carried out by the defendant 1).

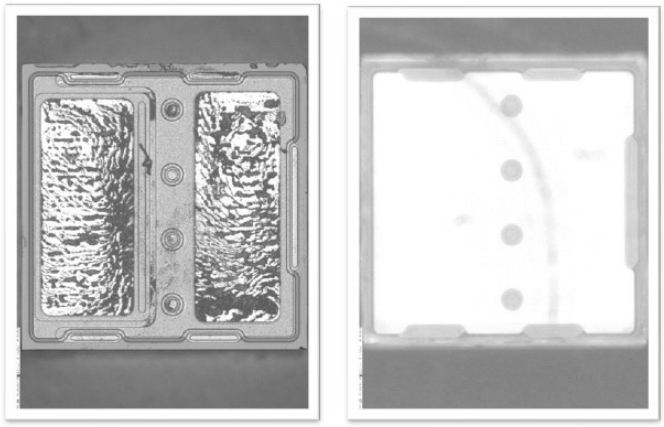
The products marketed by the defendants include the smartphone "SMART.5 32 GB" from the manufacturer Emporia. An LED lamp is installed on the back of each of these devices in connection with the camera module:

Photographie des SMART5-Gerätes

This LED lamp contains an LED chip, as shown in the following figure, which is mounted on a circuit board (hereinafter: attacked embodiment):



The microscopic images of the attacked embodiment produced by the plaintiff show the attacked embodiment in detail:



Detailaufnahme der Kontaktseite der Verletzungsform (links) und der Lichtextraktionsseite (rechts)

The plaintiff bases its infringement action on a direct infringement of patent claim 1 of the patent in suit.

In response to a counterclaim for revocation filed expressly only by the defendant 2) and based on an inadmissible extension and the lack of inventive step, the plaintiff filed a statement of opposition on
On March 23, 2024, the company filed a motion to amend the patent (App_14781/2024), with which it introduced a total of 11 auxiliary requests into the proceedings.

In a written submission dated June 27, 2024, the plaintiff also filed an application pursuant to R. 30.2 of the Rules of Procedure, with which the previous auxiliary requests were to be supplemented by four further auxiliary requests. In a procedural order dated July 1, 2024, the rapporteur stated that there was currently no reason to admit the further request for amendment (emphasis added). With regard to this procedural order, the plaintiff filed an application for a review of this order by the panel pursuant to R. 333.1 VerfO in a written submission dated July 15, 2024, whereupon the panel upheld the order of the judge-rapporteur on August 5, 2024.

MOTIONS BY THE PARTIES:

Lawsuit:

The applicant claims that the Court should,

I. order the defendants to pay the costs,

1. to refrain from doing so,

Light emitting diodes

on the territory of the Republic of Austria, the Kingdom of Belgium, the Federal Republic of Germany, the French Republic, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the Kingdom of Sweden

to offer, place on the market, use and/or import and/or possess for the aforementioned purposes,

if these are present:

a light-emitting structure formed on a substrate (100) and comprising a semiconductor layer (110) of a first conductivity type, an active layer (120) and a semiconductor layer (130) of a second conductivity type;

mesa-etched regions (150) formed from the surface of the semiconductor layer (130) of the second conductivity type to the semiconductor layer (110) of the first conductivity type;

a reflective electrode (140) formed on the semiconductor layer (130) of the second conductivity type and comprising a reflective metal layer (142), a metal barrier layer (144) and a relaxation layer (143) formed between the reflective metal layer (142) and the metal barrier layer (144), wherein the relaxation layer (143) has a coefficient of thermal expansion between the coefficient of thermal expansion of the reflective metal layer (142) and the coefficient of thermal expansion of the metal barrier layer (144);

a bottom insulating layer (200) covering an overall surface of the structure formed by the first conductivity type semiconductor layer (110), the active layer (120), the second conductivity type semiconductor layer (130), the metal etched regions (150) and the reflective electrode (140), wherein the bottom insulating layer (200) enables that an upper surface of the reflective electrode (140) is partially exposed therethrough, and further having openings disposed near an edge of the substrate which allow the semiconductor layer (110) of the first conductivity type to be exposed therethrough in the mesa-etched regions (150);

a current-expanding layer (210) formed on the lower insulating layer (200) covering the semiconductor layer (110) of the first conductivity type and electrically connected to the semiconductor layer (110) of the first conductivity type;

an upper insulating layer (220) formed on the current-expanding layer (210), wherein both the current-expanding layer (210) and the reflective electrode (140) are partially exposed through the upper insulating layer (220);

a first pad (230) electrically connected to the current-expanding layer (210) exposed through the upper insulating layer (220); and

a second pad (240) electrically connected to the reflective electrode (140) exposed through the top insulating layer (220);

2. to pay the court a penalty payment of up to EUR 250,000.00 for each case of non-compliance with the order under Section I. 1;

3. within a period of 30 days after service of the notification within the meaning of R. 118.8 sentence 1 of the Regulation and, if applicable, the certified translation, the products delivered since January 4, 2023 in accordance with point I. 1 at the defendant's expense

   a. from the distribution channels by informing the third parties from whom the infringing products are to be recalled that this court has found that the products infringe European Patent EP 3 926 698 B1, whereby the defendants must give the third parties a binding undertaking to reimburse the costs incurred, to bear the packaging and transport costs incurred, to reimburse the customs and storage costs associated with the return of the products and to take back the products,

      and

   b. permanently remove the products from the distribution channels by ordering the defendants, with reference to the fact that this court has found that the products infringe the European patent EP 3 926 698 B1, to require third parties who are industrial purchasers but not end users, with regard to the products referred to in point I.1, to cancel all orders relating to the products referred to in point I.1 and to provide the court and the plaintiff with written proof of the action taken within 30 days of service of the notification within the meaning of R. 118.8 sentence 1 of the Regulation and, where applicable, the certified translation;

4. to provide the applicant with information on

   a. Origin and distribution channels of products delivered, received or ordered since January 4, 2023 according to item I. 1,

   b. the quantities delivered, received or ordered since January 4, 2023 and the prices paid for the products in accordance with Section I. 1,

and

c. the identity of all third parties involved in the manufacture or distribution of products according to Section I.1 since January 4, 2023;

5. within a period of 30 days after delivery of the notification within the meaning of Art.
R. 118.8 sentence 1 VerfO and, if applicable, the certified translation, to destroy the products in its direct or indirect possession or in its ownership in accordance with section A.I.1 at the defendant's expense.

II. order the defendants to compensate the plaintiff for all damage which it has suffered and will suffer as a result of the acts described in section I.1 during the term of EP 3 926 698 B1;

III. declare the conviction under I. and II. to be immediately effective and enforceable;

IV. order the defendants to pay the costs.

With regard to the wording of the "in particular if" claims, reference is made to the statement of claim.

The defendants request,

1. dismiss the plaintiff's action;

2. order the applicant to pay the costs. Counterclaim and

amendments:

The defendant under 2) applies,

1. declare EP 3 926 698 invalid with effect for the territory of the Republic of Austria, the Kingdom of Belgium, the Federal Republic of Germany, France, Italy, Luxembourg, the Netherlands and Sweden to the extent of claims 1, 4, 5, 6 and 9.

2. order the applicant to pay the costs. The applicant

claims that the Court should

dismiss the counterclaim for annulment.

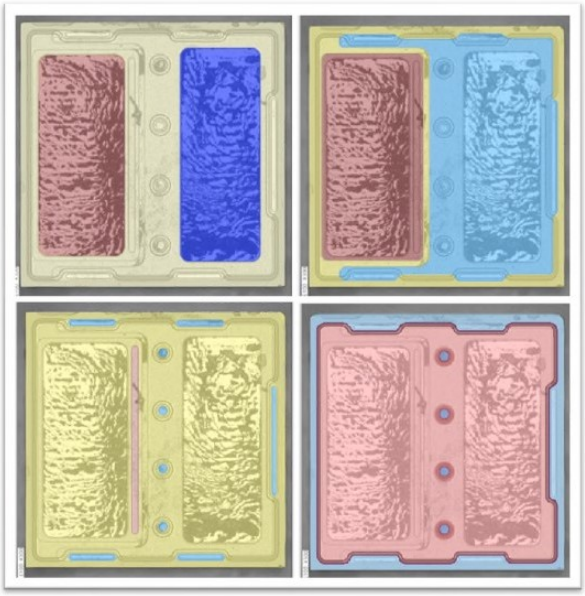
With regard to the wording of the amendments, please refer to the written submission dated March 25, 2024 and the annexes.

With regard to the formulation of the further auxiliary requests submitted in accordance with R. 30.2. of the Rules of Procedure but not yet admitted, reference is made to the submission of June 27, 2024 (App_37320/2024).

FACTUAL AND LEGAL ISSUES:

Injury:

According to the plaintiff, the structure of the contested embodiment is as follows:



Detailaufnahme der Kontaktseite der Verletzungsform. Von links oben nach rechts unten:

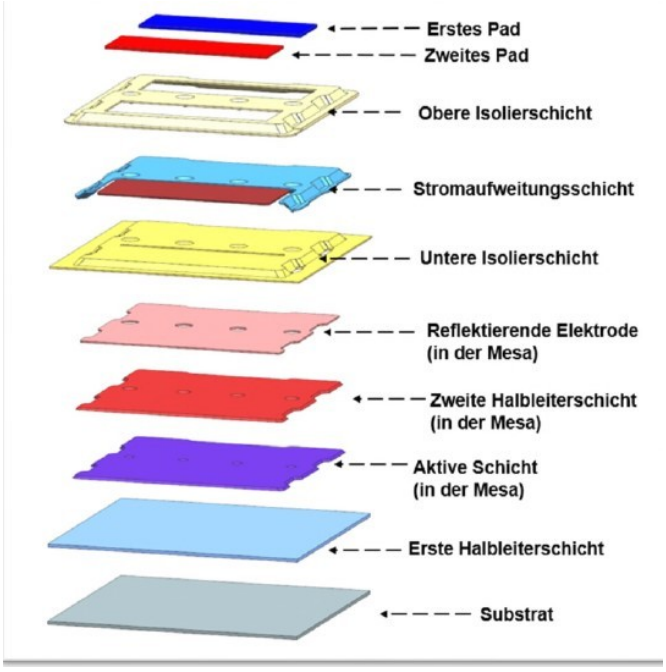
1) *Obere Isolierschicht (Beige) und zwei Pads (jeweils Rot und Königsblau);*

2) *In der Chipstruktur darunter liegend: Stromaufweitungsschicht (Blau) und elektrische Verbindungsschicht (Rot) zwischen Pad und der reflektierenden Elektrode;*

3) *In der Chipstruktur darunter liegend: Untere Isolierschicht (Gelb) mit freiliegenden Bereichen der Halbleiterschicht des ersten Leitfähigkeitstyps (Hellblau) und der reflektierenden Elektrode (Rosa);*

4) *In der Chipstruktur darunter liegend: Mesa mit sichtbarer reflektierender Elektrode Rosa) sowie Halbleiterschicht des ersten Leitfähigkeitstyps (Hellblau)*

The following figure shows a schematic representation of the layer structure of the contested embodiment from the plaintiff's point of view:



Having said this, the defendants deny the existence of a stress-relief layer in the attacked embodiment. According to the patent in suit, a metal barrier layer can be formed from a plurality of layers which can perform the function of a metal barrier layer. This is to be distinguished from the stress-relief layer, which may not have the function of a metal barrier layer. In addition, with regard to the stress-relief layer, only the respective layer that is directly adjacent to the reflective layer is of significance. Arbitrary combinations of several layers could not be regarded as a stress-relief layer because the technical issue was which specific layer with which specific coefficient of thermal expansion was in contact with the reflective metal layer and thus caused the problem or the risk of stresses.

On the basis of such an understanding, the contested embodiment does not have a stress-relief layer within the meaning of the patent in suit. A reflective layer of silver is followed by a metal barrier layer formed from the layer sequence Ti-Ni-Ti-Ni-Ti. Silver has a coefficient of thermal expansion of 18.9 µm/(m-K), whereas the coefficient of thermal expansion of titanium is 8.6 µm/(m-K). The coefficient of thermal expansion of nickel is 13.0 µm/(m-K) and thus between these values. In the attacked embodiment, there is therefore only a reflective layer and a metal barrier layer formed from the layer sequence Ti, Ni, Ti, Ni, Ti. A stress relief layer is not present.

On the basis of the understanding represented by the plaintiff in the context of the action for annulment, a current expansion layer is still lacking. If, as the plaintiff had stated in connection with citation D 3, a "complete layer" was required in this respect, such a layer was not present in the contested embodiment. There are individual narrow webs, which are then connected to a larger surface. The lateral narrow webs would lead to a considerable inhomogeneity of the current distribution and thus cause an asymmetrical current flow.

Furthermore, according to the invention, the lower insulating layer should cover the entire surface of the structure. This is also not the case with the contested embodiment. It is true that there are certain opening areas in the outer area (right and left). However, if one agrees with the plaintiff that a complete covering is required with the exception of the openings at the edge of the substrate, such an embodiment is not realized in the attacked embodiment.

Moreover, the plaintiff argued in the nullity proceedings that the current expansion layer was located spatially below the insulating layer. This is indisputably not the case with the contested embodiment. There, the insulating layer moves spatially diagonally upwards and is therefore in any case not spatially completely below the insulating layer.

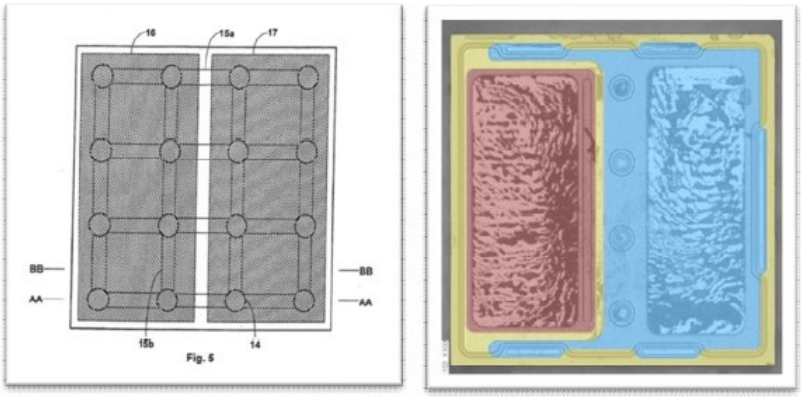
Finally, in its reply to the action for annulment, the applicant pointed out that an "upper insulating layer" was only present if it only had individual holes, but not large open areas. This was not the case with the contested embodiment. There, the openings in the upper insulating layer are significantly larger than is the case with the D 3 retention. Either one assumes with the plaintiff in the context of the action for annulment that the feature is not realized in this case. Then there would be no infringement. Or one takes the view that none of these are relevant requirements. In that case, the feature would be considered to be prejudicial to novelty.

The plaintiff has countered this argument.

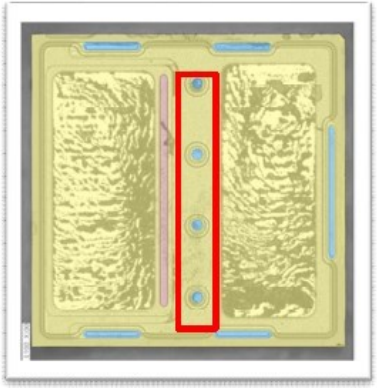
According to the applicant, the materials of the reflective electrode used in the contested embodiment correspond exactly to the materials which the patent in suit mentions for the metal barrier layer and the stress relief layer in an example embodiment. In paragraph [0033], the patent in suit describes a metal barrier layer made of titanium (Ti), a stress-relief layer made of nickel (Ni) and titanium (Ti) and a titanium layer (Ti) directly below the layer of silicon dioxide (SiO_2), which is the metal barrier layer.

The assignment to the individual layers should be functional and based on the description of the patent in dispute. The function of the metal barrier layer is to prevent the diffusion of elements from the reflective metal layer and the exposure of the reflective metal barrier layer. This depends on the combination of materials. According to the patent, the stress-relief layer can consist of several layers and be designed as a composite layer. In addition, the coefficient of thermal expansion of the stress-relief layer must be between that of the reflective layer and the metal barrier layer. In a finished layer structure, the adjacent, connected layers must also be taken into account, as well as the entirety of the layers and their mutual influences in the case of a composite layer.

In the opinion of the plaintiff, the defendants are distorting their submissions in the nullity proceedings with their objections to the stream widening layer. If the reply to the nullity counterclaim states that the stream widening layer must be a flat structure, this must be read in the context of the delimitation of D 3. This discloses a flat structure consisting of webs and narrow areas, which does not constitute a layer within the meaning of the patent in suit (left: Figure 5 of D 3: right: attacked embodiment):



Insofar as the defendants deny the existence of an insulating layer, the fact that the lower insulating layer in the contested embodiment has further openings in the inner area, via which the semiconductor layer is also contacted, does not prevent the technical teaching of the patent in suit from being realized:



In the challenged embodiment, the lower insulating layer covered the entire surface of the structure. Openings that were not used for contacting did not exist.

Counterclaim:

In the opinion of the second defendant, the patent in suit does not effectively claim the priority of the KR 201100093396 and the KR 20120015758. While the KR '396 lacks the disclosure of a relaxation layer, the design disclosed in the KR '758 has a transparent electrode layer. There was therefore no disclosure of a reflective electrode within the meaning of the patent in suit.

Furthermore, the subject matter of claim 1 of the patent in suit goes beyond the content of the original application. Firstly, at least in the opinion of the plaintiff, claim 1 in the granted version not only covers embodiments with several mesas, but also those which have only one mesa. Such embodiments with only one mesa were not disclosed in the original patent application. Only embodiments with a plurality of mesas were shown there. Apart from that, claim 1 only requires that the reflective metal layer, the metal barrier layer and the stress relief layer are formed and that the reflective electrode has these layers. This was also not disclosed in the original patent application. There, the lateral enclosure of the reflective metal layer and the stress-relief layer was technically decisive for preventing the diffusion of ions from these layers into the second semiconductor layer. For this purpose, the side areas of the layers must be covered.

Moreover, the inventive step was also lacking.

In US 2005/0067624 A1 (D 3), all the features of claim 1 are disclosed with the exception of the stress relief layer and its coefficient of thermal expansion. Based on claim D 3, the objective task for the skilled person is to reduce stresses between a reflective metal layer and a metal barrier layer. The skilled person learns from EP 1 806 790 A2 (D 5) that this makes sense and that such stresses should be avoided, in that it explains that a stress-relief layer with an adapted coefficient of thermal expansion should be provided between the reflective metal layer and the metal barrier layer. There are no further difficulties with the combination. In this respect, it should be noted that the technical problem of stresses between the layers has no effect on other layers or the structure of the LED. Against this background, a combination would not have to overcome any further technical difficulties.

Based on US 2009/283787 A1 (D 2), inventive step must also be denied. The light-emitting diode shown there in Figure 3 anticipates all features. It only lacked a reflective electrode and openings in the lower insulating layer, which were arranged near one edge of the substrate. However, a reflective electrode is shown in Figure 2 of the disclosure. The combination of the reflective electrode with the other layers disclosed in the embodiment example according to Figure 2 with the embodiment disclosed in Figure 3 is already obvious because both embodiments are disclosed in D 2. Against this background, it is obvious to the person skilled in the art that certain embodiments of the individual designs of the LED could be combined with each other. Openings near the edge of the substrate are disclosed in Figures 2, 3, 5 and 6 and in the embodiment example according to Figures 14 and 15 of D 1 (US 2010/0 117 111 A1). In this respect, the aim is to reduce the series resistance of the device. This is possible by changing the current distribution.

by also providing a current contact at the edge. This has nothing directly to do with the further structure of the LED. It could therefore be added independently by the specialist without causing any further disadvantages.

The plaintiff has countered this.

The inadmissible extension had already played no role in the grant procedure. In Figures 24 to 26, the original application shows a further embodiment in which only one mesa is present on the LED chip. Thus, a single mesa is also part of the disclosure of the original application. Furthermore, the original application does not only disclose embodiments in which the metal barrier layer laterally surrounds the reflective diode.

Insofar as the defendant 2) refers to D 3 in the context of the discussion of the inventive step, it describes two different examples of embodiments in Figures 5 to 7 and 14 and 15, which must be treated separately when discussing the inventive step. The overall disclosure of D 3 focuses on the realization of the current distribution through the grid of thin connecting lines (15a, 15b). Nothing is apparent which could lead the skilled person to provide instead a current expansion layer covering the mesa areas with an upper insulating layer through which the current expansion layer is exposed.

With regard to the avoidance of thermally induced stresses, the D 5 combined by the defendant with the D 3 is limited to the selection of two materials for two adjacent layers (the reflective silver layer and the palladium layer) of the reflective electrode with almost identical coefficients of expansion. Consequently, the teaching of D 5 does not include a stress-relief layer provided specifically for the stress build-up as an additional layer between the two outer layers with an average coefficient of thermal expansion to avoid delamination in the three-layer structure as a whole. Based on D 3, the skilled person would select materials with the most similar coefficients of thermal expansion possible for the reflective metal layer there and for the metal barrier layer. However, there is no indication that an intermediate stress-relief layer with a heat exchange coefficient between that of the reflective metal layer and that of the metal barrier layer should be provided.

D 2 had already been taken into account in the grant procedure and had not been assessed as preventing patentability. Apart from that, the citation was also not suitable for calling the inventive step into question when viewed together with D 3.

Enforceability:

With regard to the legal consequences, the defendants do not consider immediate enforceability in the present case. The defendants are pure trading companies that deal in mobile phones. Whether and which components are installed there is not recognizable for the defendants. In addition, the LEDs at issue are standard components that are purchased at a price in the range of 70 cents to 80 cents each. In this respect, there is a blatant disproportion to the respective cell phone. This illustrates that the LED at issue is a very small component that has no relevance for the economic success of the products, i.e. mobile telephones. The value ratios would make it clear that provisional enforceability would cause unreasonable damage compared to the plaintiff's claims, which could be justified by a patent infringement. If the plaintiff decided in favor, not against the manufacturer,

but against a party not involved in production and distribution, it must in any case accept that it must provide security.

The plaintiff has countered this.

With regard to the further submissions of the parties, reference is made to the entire contents of the file.

REASONS FOR THE DECISION:

The admissible action is successful on the merits.

The action for annulment is admissible, but unfounded.

A. Admissibility of the action and the action for annulment

Both the action and the action for annulment are admissible. I.
Since the defendants did not file an opposition within the opposition period, both the jurisdiction of the Unified Patent Court and the jurisdiction of the Düsseldorf Local Court are deemed to be recognized, R. 19.7 VerfO.

II.
There are no concerns regarding the admissibility of the counterclaim.

1.
In particular, the Unified Patent Court (UPC) also has international jurisdiction. Pursuant to Art. 32 (1) (e) UPCA, the UPC has exclusive jurisdiction for counterclaims for invalidity of (European) patents. As there is currently no opt-out (Art. 83 (3) UPCA) from the exclusive jurisdiction of the court in relation to the patent in dispute in force, the UPC - as the common court of the member states of the UPCA - has international jurisdiction for the present counterclaim pursuant to Art. 24 (4), 71a (2) (a), 71b (1) of Regulation (EU) No. 1215/2012.

2.
The fact that the action for annulment was expressly brought by defendant 2) alone, but not by defendant 1), does not preclude its admissibility.

In principle, if there are several defendants, the plaintiff has the choice of suing each defendant individually or bringing an action against several defendants. If the plaintiff chooses the latter, the court can order a separation of proceedings in accordance with R. 303.3 of the Code of Procedure. If a separate action is brought, the court may join the proceedings in accordance with R. 340 of the Rules of Procedure (see Bopp/Kircher, Handbuch Europäischer Patentprozess, 2nd ed., § 12 para. 211).

It follows that the actions against the individual defendants must each be dealt with independently (see Tilmann/Plassmann/Dorn, Unitary Patent, Unified Patent Court, UPC Rules § 303 para. 15). Each defendant conducts its own proceedings formally and substantively independently of the others, without the respective actions of one defendant causing advantages or disadvantages for the other defendant (see Luginbühl/Hüttermann, Unitary Patent System, Rule 303 para. 26). Therefore, R. 25.1 VerfO requires the filing of a counterclaim for a declaration of invalidity of the patent if the statement of defense includes the assertion that the allegedly infringed patent is invalid,

this applies to each defendant separately. This does not exclude the joint filing of an action for annulment by several defendants.

Applied to the present case, it follows that the defendant 2) has fulfilled its obligation to file a nullity counterclaim. The fact that defendant 1) has waived the filing of a nullity counterclaim has no influence on the admissibility of defendant 2)'s nullity counterclaim.

Conversely, it also follows from the above that the defendant 1) has not filed an action for revocation. Therefore, the validity argumentation is formally excluded for them (see: Luginbühl/Hüttermann, Unitary Patent System, R. 25 para. 4).

If the court decides - as is not the case here - to separate the proceedings against both defendants, defendant 1) could therefore not successfully invoke the lack of legal existence in its proceedings. In contrast, without such a separation, the independence of the procedural relationships has no de facto effect on defendant 1), at least as long as the Board refrains from separating the proceedings. If the patent in suit is declared invalid on the basis of a defendant's nullity action, the infringement action as a whole already lacks a basis.

B. Scope of protection of the patent in suit

With regard to the scope of protection of the patent in suit, the following applies:

I.
The patent in suit relates to a light-emitting diode and in particular to a light-emitting diode of the flip-chip type with improved luminous efficacy.

1.
As the patent in suit states in the introduction, light-emitting diodes based on gallium nitride are formed by growing epitaxial layers on a substrate. They 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 current source via the electrode pads. At this point, current flows from the p-electrode pad to the n-electrode pad through the semiconductor layer (para. [0003]).

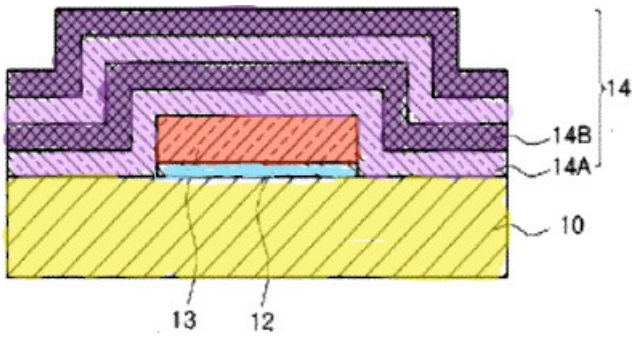
In order to improve heat conduction and at the same time prevent light loss through the p-electrode pad, a light-emitting diode with a flip-chip structure is used in the prior art. In the prior art (see US 6 486 499 B1 = citation D 6 in the nullity action), various electrode structures were proposed to improve the current distribution in large-area light-emitting diodes with this structure. For example, a reflective electrode is formed on the p-type semiconductor layer. In addition, 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]). Linear extensions are used, which limit the current distribution due to their high resistance (Ref. [0006]).

In solutions known from the prior art, the reflective electrode formed on the p-type semiconductor layer reflects the light generated in the active layer to increase the light extraction efficiency and supports the current distribution in the p-type semiconductor layer.

type (para. [0005]). Since a reflective electrode is placed only on the p-type semiconductor layer, there is considerable loss of light through the pads and the extensions (Ref. [0006]).

LEDs with a flip-chip structure are characterized by the fact that light is emitted through a substrate. Accordingly, after the formation of semiconductor layers on the substrate, a metal reflective layer is formed over the semiconductor layers or a current distribution layer so that light can be reflected by the reflective layer (Ref. [0007]).

Figure 1, shown below in reduced form, taken from the patent in suit and colored by the court, is a partial sectional view of a light-emitting diode with a reflective layer from the prior art (para. [0008]):



In particular, a mesa layer (10), an ohmic layer (12) formed from a conductive metal or a conductive oxide and a reflective layer (13) consisting of silver (Ag) or aluminum (Al) can be seen. In the barrier layer (14), first barrier layers (14b) containing nickel (Ni) and second barrier layers (14b) containing tungsten (W) or tungsten-titanium (TiW) are alternately stacked on top of each other. The barrier layer (14) prevents the diffusion of metal elements that form the reflective layer (13). The reflective layer (13) has a higher coefficient of thermal expansion than the barrier layer (14). This leads to stresses in the reflective layer (13). Accordingly, the reflective layer (13) is separated from the resistive layer (12) or the mesa layer (10) under the resistive layer (12) due to the stress generated in the reflective layer (13) at the same temperature (Ref. [0012]).

In addition, various methods have been developed in the prior art to improve the performance of the light emitting diode. For example, the solution disclosed in US 2009/0283787 A1 (= citation D 2 in the nullity counterclaim) comprises a light-emitting diode comprising a diode region having first and second opposing surfaces and containing an n-type layer and a p-type layer. An anode contact ohmically contacts the p-type layer and extends on the first surface. In addition, a transparent insulating layer extends on the first surface outside the anode contact. The n-type layer is electrically contacted by a reflective cathode contact, which extends through a transparent insulating layer and onto the transparent insulating layer located outside the anode contact to cover substantially the entire first surface located outside the anode contact with the reflective cathode contact (par. [0013]).

Based on this, the patent in suit, according to the description of the patent in suit, is based on the task (the technical problem) of developing a light-emitting diode with improved current distribution performance and improved light extraction efficiency by improving the reflectance of the light-emitting diode.

xionizing diode capable of reducing the voltage caused by a reflective layer. Furthermore, to provide a method for manufacturing a light-emitting diode which can improve the current distribution performance while avoiding a complicated manufacturing process. Finally, a technique for improving the light extraction efficiency by surface patterning with a cost-effective and simple process is to be provided (para. [0014] - [0018]).

To solve this problem, patent claim 1 of the patent in suit protects a light-emitting diode which is characterized by a combination of the following features:

1. **Light emitting diode,** comprising

    1.1. a light-emitting structure;
    1.2. mesa etched areas (150);
    1.3. a reflective electrode (140);
    1.4. a bottom insulating layer (200);
    1.5. a flow expansion layer (210);
    1.6. an upper insulating layer (220);
    1.7. a first pad (230);
    1.8. a second pad (240).

2. The **light-emitting structure**

    2.1. is formed on a substrate (100);

    2.2. points out:

        2.1.1. a semiconductor layer (110) of a first conductivity type,
        2.1.2. an active layer (120) and
        2.1.3. a semiconductor layer (130) of a second conductivity type.

3. The **mesa-etched areas (150)** are formed from the surface of the semiconductor layer (130) of the second conductivity type to the semiconductor layer (110) of the first conductivity type.

4. The **reflective electrode (140)**

    4.1. is formed on the semiconductor layer (130) of the second conductivity type;

    4.2. points out:

        4.2.1. a reflective metal layer (142);
        4.2.2. a metal barrier layer (144);
        4.2.3. a stress-relief layer (143);

            4.2.3.1. The relaxation layer (143)

                4.2.3.1.1. is between the reflective metal layer (142) and the metal barrier layer (144);

                4.2.3.1.2. has a coefficient of thermal expansion between the coefficient of thermal expansion of the reflective metal layer

(142) and the coefficient of thermal expansion of the metal barrier layer (144).

5. The **bottom insulating layer (200)**

   5.1. covers the one total surface of the structure, which is formed by:

      5.1.1. the semiconductor layer (110) of the first conductivity type,
      5.1.2. the active layer (120),
      5.1.3. the semiconductor layer (130) of the second conductivity type;
      5.1.4. the mesa-etched areas (150) and
      5.1.5. the reflective electrode (140).

   5.2. has openings that are located near the edge of the substrate;

   5.3. enables that

      5.3.1. an upper surface of the reflective electrode (140) is partially exposed through it;
      5.3.2. the semiconductor layer (110) of the first conductivity type is exposed through it in the mesa-etched regions (150);

6. The **current expansion layer (210)**

   6.1. is formed on the lower insulating layer (200);

   6.2. covers the semiconductor layer (110) of the first conductivity type;

   6.3. is electrically connected to the semiconductor layer (110) of the first conductivity type.

7. The **upper insulating layer (220)**

   7.1. is formed on the flow expansion layer (210).

   7.2. both the current expansion layer (210) and the reflective electrode (140) are partially exposed through the upper insulating layer (220).

8. The **first pad (230)** is electrically connected to the current expansion layer (210), which is exposed through the upper insulating layer (220).

9. The **second pad (240)** is electrically connected to the reflective electrode (140), which is exposed through the upper insulating layer (220).

2.
Some features require interpretation.

a)
According to Art. 69 EPC in conjunction with the Protocol on its interpretation, the patent claim is not only the starting point, but the decisive basis for determining the scope of protection of a European patent. 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 used as explanatory aids for the interpretation of the patent claim and not only to resolve any ambiguities in the patent claim. However, this does not mean that the patent claim merely serves as a guideline and that its subject matter also extends to that which, after examination of the description and the drawings, appears to be the patent proprietor's request for protection (UPC_CoA_335/2023, order of 26.02.2023 in conjunction with order of 11.03.2023). Order of 11.03.2024, GRUR-RS 2024, 2829, guiding principle 2. and para. 73 - 77 - 10x Genomics v. NanoString; UPC_COA_182/2024, order of 25.09.2024, para. 82 - Mammut Sports v. Ortovox Sportartikel; see also UPC_CFI_7/2024 (LD Düsseldorf), decision of 03.07.2024, ORD_598324/2023 - Franz Kaldewei v. Bette).

b)
In the opinion of the local chamber, the relevant expert is a graduate engineer or master of electrical engineering or semiconductor physics with a degree from a university of applied sciences and several years of professional experience in the development of light-emitting diodes and processes for their manufacture.

c)
Having said this, the following applies:

aa)
According to the invention, the light-emitting diode has mesa-etched areas (150).

(1)
The person skilled in the art who turns to the question of the technical design of such regions will infer from patent claim 1 that the mesa-etched regions are formed from the surface of the semiconductor layer (130) of the second conductivity type to the semiconductor layer of the first conductivity type (feature 3.). From this, the skilled person concludes two things: There must be mesa-etched areas (plural) and thus at least two. The existence of a single such area is not sufficient for the realization of the technical teaching protected by the patent in suit. In addition, the mesa-etched areas must in any case extend from the surface of the semiconductor layer of the second conductivity type to the semiconductor layer of the first conductivity type.

In addition, the mesa-etched areas are only mentioned in claim 1 to the effect that they are part of the structure covered by the lower insulating layer (see notes 5.1. and 5.1.4.) and that the semiconductor layer (110) of the first conductivity type is exposed through the lower insulating layer in the mesa-etched areas. The skilled person will look in vain in claim 1 for further specifications, for example on the shape or on the question of the overlapping of mesa-etched areas.

(2)
Turning from this to the patent description, the skilled person's attention is first drawn to paragraph [0125], which states:

> "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 [...] to the surface of the first semiconductor layer 110

may be a trench-shaped stripe type or a hole type."

And based on the translation provided as Annex LL 6a:

> "Referring to Figure 14**, a portion of the active layer 120 and a portion of the second semiconductor layer 130** are **removed by typical etching. As a result, the first semiconductor layer 110 is exposed.** As a result of the etching process, a top 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 by the etching process. In other words, the mesa-etched regions 150 formed from the surface of the second semiconductor layer 130 [...] to the surface of the first semiconductor layer 110 may be trench-shaped, strip-shaped, or hole-shaped."
>
> (emphasis added)

Even if Figure 14, together with the associated description, is an embodiment example to which the invention must not be reduced, the excerpt from the patent in suit description reproduced above demonstrates to the skilled person why mesa- etched areas are required according to the invention: If parts of the active layer and the second semiconductor layer are removed during the etching process, the first semiconductor layer is exposed in the mesa- etched areas (see also paragraphs [0147], [0165], [0167], [0195] and [0004] loc. cit., [0019] and [0071], the latter of which speaks of a "structuring of the second conductive semiconductor layer and the active layer"). Correspondingly, the patent specification in suit understands a
"Mesa etching" means a process of partially etching the second conductive semiconductor layer to expose the first conductive semiconductor layer (Ref. [0230]). Furthermore, since the first semiconductor layer is not covered by the lower insulating layer in the mesa- etched areas, an electrical connection from the first pad (230) (feature 8.) via the current expansion layer (210) (feature 6.3.) to the first semiconductor layer is thus enabled. The first semiconductor layer (110) is therefore electrically connected to the first pad (130) (see paragraphs [0085] and [0160]).

(3)
As the skilled person will further understand from the description of the patent in suit, the mesa-etched regions can be trench-shaped, strip-shaped or hole-shaped (see paragraphs [0125] loc. cit., [0126], [0141], [0144], [0164], [0168]). However, since patent claim 1 does not mention the shape of the mesa-etched regions and it is also not apparent that the mesa-etched regions can only fulfill the function of exposing the first semiconductor layer assigned to them according to the invention with a specific shape, the design of the shape of the mesa-etched regions is left to the discretion of the skilled person as long as these regions are formed, as required by feature 3, from the first semiconductor layer of the second conductivity type to the semiconductor layer of the first conductivity type. This also includes the possibility of partial overlapping of mesa- etched areas as long as at least two such areas remain identifiable.

(4)
No mention is made in patent claim 1 of the mesa(s) created as a result of the presence of corresponding mesa-etched areas (150). The number of these is left open in patent claim 1.

Insofar as the description of the patent in suit repeatedly mentions a plurality of mesas (see, for example, paragraphs [0020] - [0023], [0027], [0037], [0039], [0041], [0044], [0070] - [0073], [0076] et seq,
[0080], [0091], [0093] f.), such a design was not reflected in the claim. The scope of protection therefore covers not only designs in which several, i.e. at least two, mesas can be identified. Rather, light-emitting diodes with only one mesa are also protected.

Mesa, as long as the LED has mesa-etched and thus at least two such areas.

If claim 1 is based solely on the presence of mesa-etched areas and thus not on the mesa itself, the shape of one or more mesa(s) is also not decisive. These may, for example, have an elongated shape and extend parallel to each other in the direction of one side of the substrate (cf. para. [0022], [0072]), without the invention being limited to such a shape.

bb)
According to the invention, the electrode (140) formed on the semiconductor layer of the second conductivity type has a reflective metal layer (142), a metal barrier layer (144) and a stress-relief layer (143) (features 4., 4.1., 4.2.1. - 4.2.3.).

(1)
The skilled person will search in vain for specifications on the chemical composition of the aforementioned layers in patent claim 1. Rather, these are merely defined and differentiated from one another in relation to the function assigned to them and their properties.

(a)
Thus, the reflective metal layer (feature 4.2.1.) serves to reflect the light generated in the active layer (feature 2.1.2.) (see para. [0010], para. [0112]). Even if patent claim 1 does not refer to the ingredients of the layer, it is thus clear that the reflective metal layer must be formed from a material with a high conductivity and a high reflectivity with respect to light. By way of example, the patent in suit mentions silver (Ag) or silver alloys or aluminum (Al) or aluminum alloys as possible constituents of the reflective metal layer (see sub-claim 4 and paragraphs [0010] loc. cit., [0075], [0098],
[0112], [0115] f., [0129], [0140]).

(b)
However, the metal elements or ions contained in the reflective metal layer can diffuse into the neighboring layers. In order to prevent this (and thus ultimately a deterioration of the reflective properties) of the reflective metal layer (par. [0011] and [0115]), the reflective electrode according to the invention also has a metal barrier layer (feature 4.2.2.). To improve the barrier effect, the metal barrier layer, which may also be multilayered, can (also) cover the side surfaces of the reflective layer in addition to a top surface (subclaim 7 and paragraphs [0011], [0024], [0075], [0137] f.). However, this is not a condition for the realization of the technical teaching protected by patent claim 1. As possible materials of the metal barrier layer, the patent in suit mentions, inter alia, tungsten (W), tungsten-titanium (TiW), titanium (Ti), nickel (Ni), molybdenum (Mo) or palladium (Pd) (see sub-claim 6 and paragraphs [0011], [0033] - [0036], [0075] a.E., [0115] f., [0136], [0140]),
without the scope of protection being limited to these materials.

(c)
Since the reflective metal layer and the metal barrier layer have different thermal expansion coefficients, stresses can occur in the reflective metal layer, which can cause the reflective metal layer to separate from the mesas and thus ultimately from the second semiconductor layer (para. [0099]).

In order to relieve these stresses, according to the invention, between the reflective metal layer

(142) and the metal barrier layer (144), a stress relief layer whose coefficient of thermal expansion is between that of the reflective layer and that of the metal barrier layer is provided (features 4.2.3., 4.2.3.1. and 4.2.3.1.1.). Accordingly, the stress caused by the difference in thermal expansion coefficients between the reflective metal layer (142) and the metal barrier layer (144) is absorbed by the stress relief layer (143) (par. [0142]), whereby separation of the reflective metal layer from the semiconductor layer can be prevented (par. [0045] loc. cit., [0113]).

As far as the materials of the stress relief layer are concerned, this can be, for example, either a single layer formed, for example, from silver (Ag), copper (Cu), nickel (Ni), titanium (Ti) or palladium (Pd) or a composite layer formed from copper (Cu), nickel (Ni), titanium (Ti), palladium (Pd) or gold (Au) (see sub-claim 9 and paragraphs [0033] - [0035] and paragraphs [0112] - [0114]). However, since the coefficient of thermal expansion of the stress relief layer should lie between that of the reflective metal layer and the metal barrier layer and both the reflective metal layer and the metal barrier layer can be composed of a variety of materials, the material of the stress relief layer is inevitably dependent on the material of the other layers (par. [0113], [0132] and [0140]). This must be selected in such a way that the coefficient of thermal expansion of the layer in question lies between that of the reflective metal layer and the metal barrier layer.

(d)
As far as the delimitation of the layers from each other is concerned, based on the above considerations, this cannot be carried out solely on the basis of the materials contained in the respective layer, because the patent in suit description already permits the same materials in different layers in some cases. For example, silver is mentioned as a component of both the reflective metal layer and the stress-relief layer (see sub-claims 4 and 9 and para. [0033]). The same applies to titanium and nickel, which are mentioned both as a component of the stress-relief layer and of the metal barrier layer (see sub-claims 6 and 9; para. [0033] - [0036] and [0115] f.). According to the description of the patent in suit, certain materials cannot only alternatively belong to certain layers. Rather, the description of the patent in suit also allows certain materials to be found in one embodiment both in the metal barrier layer and in the stress-relief layer. For example, the following embodiment is mentioned in paragraph [0033] of the patent in suit description:

> "[...] and the **barrier metal layer** may include one of W, TiW, Mo, Ti, Cr, Pt, Rh, Pd, and **Ni**. Further, the **stress relieving layer** may be formed as a single layer of Ag, Cu, **Ni**, Pt, **Ti**, Rh, Pd or Cr, or as a composite layer of a plurality of metals selected from Cu, **Ni**, Pt, **Ti**, Rh, Pd or Au."

And in the translation submitted as Annex LL 6a:

> "[...] and the **barrier metal layer** may include one of W, TiW, Mo, **Ti**, Cr, Pt, Rh, Pd and **Ni**. In addition, the **stress relief layer** may be formed as a single layer of Ag, Cu, Ni, Pt, **Ti**, Rh, Pd or Cr or as a composite layer of a plurality of metals selected from Cu, **Ni,** Pt, **Ti,** Rh, Pd or Au."
>
> (emphasis added)

These statements, which can be found in the general part of the description of the patent in suit, therefore make it clear to the skilled person that nickel and titanium can be components of both the metal barrier layer and the stress-relief layer, and, in the absence of any restriction, also in one and the same embodiment and irrespective of whether the stress-relief layer is designed as a single layer or as a composite layer.

In addition, paragraph [0115] f. states, among other things:

> "[...] when the reflective metal layer 142 includes Al or Al alloys and the **barrier metal layer** 144 includes Cr, Pt, Rh, Pd or **Ni**, the **stress relieving layer** 143 may be formed as a single layer of Ag or Cu or as a composite layer of **Ni**, Au, Cu or Ag.
>
> [...]
>
> when the reflective metal layer 142 includes Ag or Ag alloys and the **barrier metal layer** 144 includes Cr or **Ni**, the **stress relieving layer** 143 may be formed as a single layer of Cu, Cr, Rh, Pd, TiW or Ti, or as a composite layer of **Ni**, Au or Cu".

And in German translation (see Annex LL 6a):

> "[...] if the reflective metal layer 142 also contains Al or Al alloys and the **barrier metal layer** 144 contains Cr, Pt, Rh, Pd or **Ni**, the **stress-relief layer** 143 can be formed as a single layer of Ag or Cu or as a composite layer of **Ni**, Au, Cu or Ag.
>
> [...]
>
> If the reflective metal layer 142 contains Ag or Ag alloys and the **barrier metal layer 144** contains Cr and **Ni**, the **stress-relief layer** 143 can be formed as a single layer of Cu, Cr, Rh, Pd, TiW or Ti or as a composite layer of **Ni,** Au or Cu."
>
> (emphasis added)

In the first case, nickel is therefore contained in the metal barrier layer. At the same time, nickel can also be found in the stress relief layer if this is designed as a composite layer. In the second design, nickel is contained in the metal barrier layer, but can also be a component of the stress relief layer if this is designed as a composite layer.

Based on this, the determination and classification of certain layers cannot be based solely on specific materials. Rather, the function of the layer in question (reflection, relaxation, blocking) is decisive. Since the same substances can be a component of different layers, each of which has certain properties, it is also clear that certain functions of the layers may also overlap. If the stress-relief layer partially prevents the passage of metal elements and ions from the reflective metal layer due to the substances contained therein, for example, this does not lead out of the protective area if (1) a further metal barrier layer is present and (2) the coefficient of thermal expansion of the stress-relief layer is between that of the reflective metal layer and the metal barrier layer, so that the stress-relief layer can develop its stress-reducing effect.

cc)
As the skilled person can see from feature group 5. of the feature structure shown above, the entire surface of the structure formed by the semiconductor layer of the first conductivity type, the active layer, the semiconductor layer of the second conductivity type, the mesa-etched regions and the reflective electrode is to be covered by the lower insulating layer (features 5. and 5.1.).

(1)
So that both semiconductor layers arranged below the lower insulating layer can be supplied with current from the pads arranged above (see feature groups

8. and 9.), the semiconductor layers must not be completely insulated from the pads. The need for an electrical connection is taken into account by feature group 5.3, according to which both the upper surface of the reflective electrode and the semiconductor layer of the first conductivity type should be partially exposed through it in the mesa- etched areas. Paragraphs [0077] - [0079] of the patent-in-suit description explain one possible implementation. According to this, the lower insulating layer has openings (31a, 31b) which are arranged in an area between the mesas M and in the vicinity of an edge of the substrate. However, since such openings arranged between the mesas M and in the vicinity of an edge of the substrate are not mentioned in patent claim 1, this is merely a preferred embodiment which does not limit the scope of protection. Patent claim 1 describes the lower insulating layer only in functional terms in that it must allow a corresponding (partial) exposure of the reflective electrode and the semiconductor layer of the first type. The specific technical implementation is left to the skilled person.

(2)
However, this does not apply without restriction. Rather, the lower insulating layer must be
5.2. have openings disposed near an edge of the substrate ("openings disposed near an edge of the substrate").

As long as such openings are present, a design can fall within the scope of protection of patent claim 1. The mere requirement for the arrangement of openings near the edge does not lead to the reverse conclusion that they may not also be present in other areas. Patent claim 1 does not require the exclusive arrangement of the openings at the edge.

If the skilled person attempts to understand the scope of feature 5.2, he will recognize that the openings are to be arranged near the edge of the substrate (feature 5.2, subline added). It is therefore not necessary for the corresponding openings to be arranged at the edge. It is therefore sufficient if they are located near the edge.

The patent in dispute is silent on the technical background of such an arrangement of the openings. A corresponding arrangement of the openings of the lower insulating layer is only mentioned in paragraph [0078] ("The openings 31a are disposed in a region between the mesas M and near an edge of the substrate 21 [...]; in German translation: "Die Öffnungen 31a und 31b sind in einem Bereich zwischen den Mesas M und in der Nähe einer Kante des Substrats 21 angeordnet [...].").

However, the background of such an arrangement becomes clear with a view to the overall arrangement of the light-emitting diode protected by patent application 1. If the lower insulating layer also has openings in its edge areas, the current expansion layer can be in contact with the semiconductor layer of the first type in these areas close to the edge (see feature 5.2. in conjunction with feature 6.3.). This means that the actual contacting of the first semiconductor layer by the current expansion layer also takes place in the edge areas of the semiconductor layer. According to the plaintiff's uncontradicted statements, this shortens the necessary current path in the semiconductor layer of the first conductivity type. According to Ohm's law, this reduces the electrical resistance and increases the efficiency of the LED (statement of claim, p. 21 below, para. 35 and p. 37, para. 65).

ee)
In order to achieve the objective of improved power distribution performance pursued by the invention (cf. para.

[0014] and [0044]), the light-emitting diode protected by patent claim 1 has a current expansion layer (feature group 6.).

This is characterized in more detail in claim 1 in that it is formed on the lower insulating layer (feature 6.1.), covers the semiconductor layer of the first conductivity type (feature 6.2.) and is electrically connected to the semiconductor layer of the first conductivity type (feature 6.3.).

Further specifications for the technical design of the current expansion layer are not found in paragraph claim 1. Insofar as the current expansion layer (current distribution layer) is characterized in paragraph [0080] in connection with the explanation of the design shown in Figure 8 to the effect that it covers the plurality of mesas M (see also paragraphs [0021] and [0093] f.) and has openings in the upper area through which the reflective diodes are exposed, this is not reflected in the patent claim. It is a preferred embodiment example which does not limit the scope of protection. The same applies insofar as the current expansion layer according to paragraph [0097] is to cover substantially a total area of the first conductive layer between the mesas M. Patent claim 1 allows coverage of the first semiconductor layer to be sufficient. In contrast, it does not require the *entire surface* of the first semiconductor layer to be covered, nor does it require the current expansion layer to be formed throughout. The fact that the patent in suit also recognizes such a continuous formation of layers is demonstrated by paragraph [0091], according to which the first semiconductor layer should be continuous. Patent claim 1 does not require this with regard to the current expansion layer.

ff)
According to the invention, an upper insulating layer is to b e formed on the current expansion layer (feature group 7.).

As long as the layer in question has an insulating effect and is arranged on the current expansion layer, its more detailed technical design is at the discretion of the person skilled in the art. Furthermore, it only needs to be designed in such a way that the current expansion layer and the reflective diode are partially exposed through it (feature 7.2.). This ensures that the first and second pads, as required by features 8. and 9., can be electrically connected either to the current expansion layer (first pad) or to the reflective electrode (second pad). The technical implementation of this disclosure is left to the skilled person. For example, openings as shown in Figure 9 and described in paragraphs [0083] f. and [0095] may be considered for this purpose. However, the invention is not limited to such a design.

C. Merits of the counterclaim

The counterclaim is not successful on the

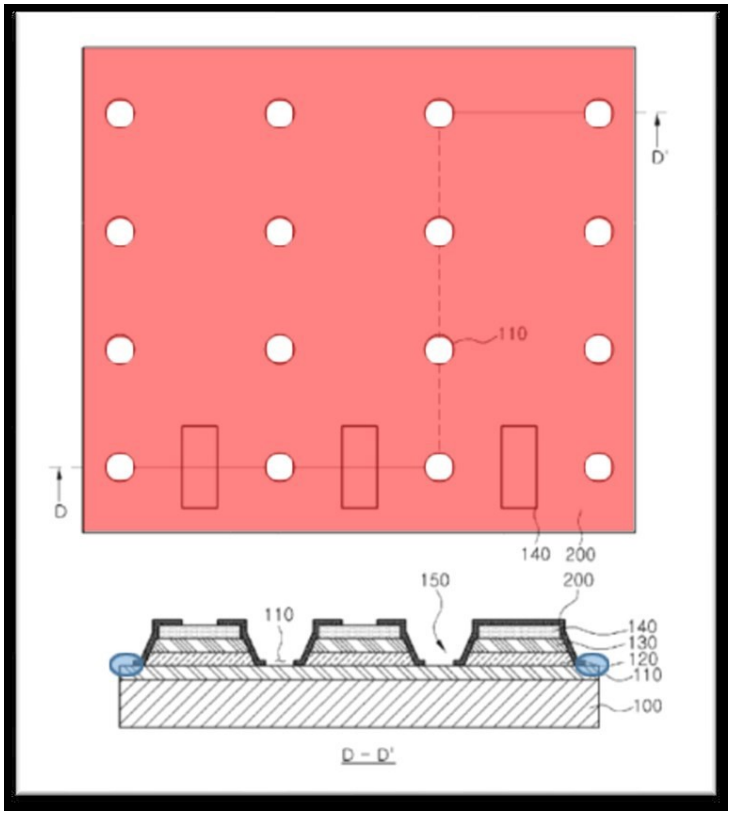
merits. I.
The subject matter of claim 1 does not go beyond the content of the original application.
and is therefore not based on an inadmissible extension.

1.
Art. 138(1)(c) EPC provides that a European patent may be declared invalid with effect in a Contracting State if the subject-matter of the European patent exceeds the content of the application as originally filed or, if the patent was granted on the basis of a divisional application, the content of the earlier application as originally filed.

version filed (Art. 123(2) EPC).

2.
This is not the case here.

a)
Insofar as the defendant (2) attempts to justify an inadmissible extension by arguing that the original patent application only discloses arrangements with several mesas, but not those with one mesa, the mesas themselves are not mentioned in patent claim 1, as already explained. Rather, the presence of mesa-etched regions formed from the surface of the semiconductor layer of the second conductivity type to the semiconductor layer of the first conductivity type is sufficient, but also necessary (feature 3.). Such mesa-etched areas are shown, inter alia, in Figure 24 of the disclosure, which is shown below in the colored version submitted by the applicant for the file:



As illustrated in the figure above, the mesa-etched regions (150) are hole-shaped, with the first semiconductor layer exposed in the mesa-etched regions (150) (see Appendix B5a, paragraphs [0163] and [0167]).

Based on the understanding already worked out in detail above, the mesa-etched areas formed as holes are arranged not only in the center but also in the vicinity of an edge. If the first semiconductor layer is exposed in the mesa-etched areas, it inevitably follows that the lower insulating layer must also have corresponding openings in these areas (feature 5.2.).

Defendant 2) rightly points out that an arrangement of the mesa-etched areas near the edge cannot be justified solely by the areas marked in blue on the left and right in the above figure. The cut D-D ends in a hole in each case, so that a non-metal-etched area follows from there to the outside. But

regardless of this, the outer rows of holes are located near the edge. Feature 5.2. does not require more. In particular, there is no need for an arrangement at the edge. The defendant 2) does not claim that the objective of better current distribution, which is the aim of the edge-side arrangement of the mesa-etched areas, would not be achievable with an arrangement as shown in Figure 24. This is also not apparent. Rather, the current expansion layer can also contact the first semiconductor layer in the edge areas in the design shown, as a result of which the current distribution on the first semiconductor layer can be improved.

b)
Insofar as the defendant re 2) also seeks to justify an inadmissible extension by arguing that feature group 4.2. only requires the formation of a reflective metal layer (142), a metal barrier layer (144) and a stress-relief layer (143) and that the reflective electrode (140) has these layers, whereas according to the original disclosure (Annexes B 5/B 5a) the side areas of the layers must (also) be covered, the Local Board is not able to follow this, taking into account the overall disclosure content of the disclosure.

Even if the metal barrier layer is described there in the context of the explanation of the preferred embodiment example to the effect that it is arranged on the stress-relief layer and comprises the side surface of the reflective metal layer and the stress-relief layer (see Appendix B 5a, para. [0113], see also sub-claim 3), this does not exhaust the disclosure content of the disclosure. Rather, it is stated at the bottom of page 3 to the top of page 4 (cf. Annex B 5):

> "Each of the reflective electrodes may include a reflective metal layer and a barrier metal layer. Further, the barrier metal layer **may cover an upper surface and a side surface** of the reflective metal layer."

And based on the translation submitted as Annex B 5a (para. [0023]):

> "Each of the reflective electrodes may include a reflective metal layer and a barrier metal layer. Further, the barrier metal layer **may cover a top surface and a side surface** of the reflective metal layer."
>
> (emphasis added)

Even if the optional metal barrier layer is present, covering the side surface of the reflective metal layer is therefore a possibility, but not a necessity.

II.
The fact that the technical teaching protected by patent claim 1 is new (Art. 54 EPC) is not in dispute between the parties. There is therefore no need to comment on this question. Furthermore, inventive step must also be affirmed.

1.
According to Article 56 EPC, an invention is considered to involve an inventive step if it is not obvious to a person skilled in the art in the light of the prior art.

In the opinion of the Munich Central Division (UPC_CFI_1/2023 (CD Munich), decision of 16.07.2024 - Sanofi v. Amgen), which the local division agrees with, it is not necessary in the context of

The examination of inventive step must always be assessed on a case-by-case basis, taking into account all relevant facts and circumstances. An objective approach must be adopted. The subjective ideas of the applicant or inventor are irrelevant. Only what the claimed invention actually contributes to the state of the art is relevant.

The inventive step is to be assessed from the point of view of the person skilled in the art on the basis of the entire state of the art, including general technical knowledge. It must be assumed that the person skilled in the art had access to the entire generally accessible state of the art at the relevant time. The decisive factor is whether the claimed subject-matter is derived from the prior art in such a way that the skilled person would have found it on the basis of his knowledge and skills, e.g. by obvious modifications of what is already known.

In order to assess whether or not a claimed invention was obvious to a person skilled in the art, it is first necessary to determine a starting point in the prior art. Reasons must be given as to why the skilled person would regard a particular part of the prior art as a realistic starting point. A starting point is realistic if its teaching would have been of interest to a person skilled in the art who, at the priority date of the patent in suit, was seeking to develop a similar product or process to that disclosed in the prior art, i.e. which has a similar basic problem to the claimed invention (cf. UPC_CoA_335/2024, order of 26.02.2024, p. 34 - Nanostring v. 10x Genomics, under "cc" in the original German version, "For a person skilled in the art who was faced with the task at the priority date of the patent in suit, [...] D 6 was of interest"). There may be several realistic starting points, and it is not necessary to determine the "most promising" starting point.

If the claimed subject-matter is compared with the prior art after interpretation, the question arises whether it would have been obvious for the skilled person to arrive at the claimed solution on the basis of a realistic disclosure of the prior art in view of the underlying problem. If it was not obvious to arrive at this solution, the claimed subject-matter fulfills the requirements of Article 56 EPC.

In general, a claimed solution is obvious if, based on the prior art, the skilled person would be motivated (i.e. would have an incentive, see the CoA in NanoString/10x Ge- nomics, p. 34) to consider the claimed solution and implement it as the next step ("next step", see UPC_CoA_335/2024, order of 26.02.2024, p. 35, second paragraph - Nanostring v. 10x Genomics) in developing the prior art. On the other hand, it may be relevant whether the skilled person would have anticipated particular difficulties in carrying out the next step or steps. Depending on the facts and circumstances of the case, it may be permissible to combine prior art disclosures.

A technical effect or advantage achieved by the claimed subject-matter compared to the prior art may be an indication of inventive step. A feature arbitrarily selected from several possibilities cannot generally contribute to inventive step.

One-sidedness must be avoided. The question of inventive step should not be answered by searching retrospectively for (combined) prior art disclosures from which this solution could be derived when the patented subject-matter or the patented solution is known.

2.
The plaintiff rightly did not oppose the objection of the defendant 2) that the patent in suit does not effectively claim the priority of KR 20110009396 (Annex B 6) and KR20120015758 (Annex B 7).

Neither in the LR '396 (Annex B 6) nor in the LR '758 (Annex B 7) is the subject matter of the patent in dispute disclosed. While KR '396 (Annex B 6) lacks the disclosure of a stress-relief layer and its coefficient of thermal expansion (feature group 4.3.), KR '758 (Annex B 7) discloses neither an upper insulation layer nor a stress-relief layer of the reflecting diode.

The priority date is therefore May 17, 2012. 3.
The patent in suit in the registered version is not comparable to a combination of the D 3 (US 2005/0067624 A1) with the D 5 (EP 1 806 790 A2).

a)
There is rightly no dispute between the parties that D 3 (US 2005/0067624 A1) is a realistic starting point for the assessment of inventive step.

b)
Citation D 3 protects a light-emitting device with a layer of a first conductivity type, a layer of a second conductivity type and a light-emitting layer (patent claim 1). Consequently, feature group 2 is disclosed.

Based on this, Figures 5 to 7 of the citation, which are shown in reduced form below, show an embodiment of the invention with a large-area light-emitting III-nitride flip-chip device. Figure 5 is a top view of a light-emitting component with vias and solder connections:

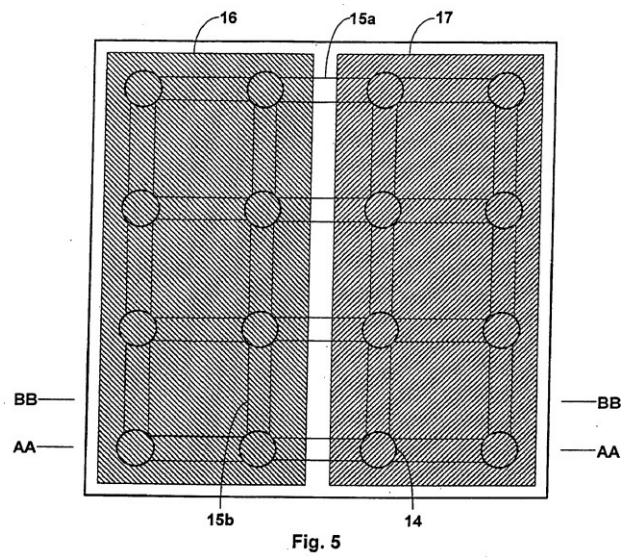


Fig. 5

Figures 6 and 7, shown in a version colored by the chamber, are cross-sectional views of the device shown in Figure 5 along the axis AA (Figure 6) and BB (Figure 7).

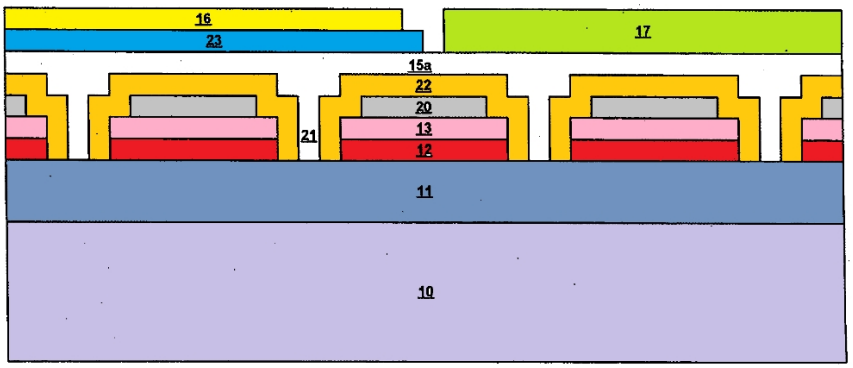


Fig. 6

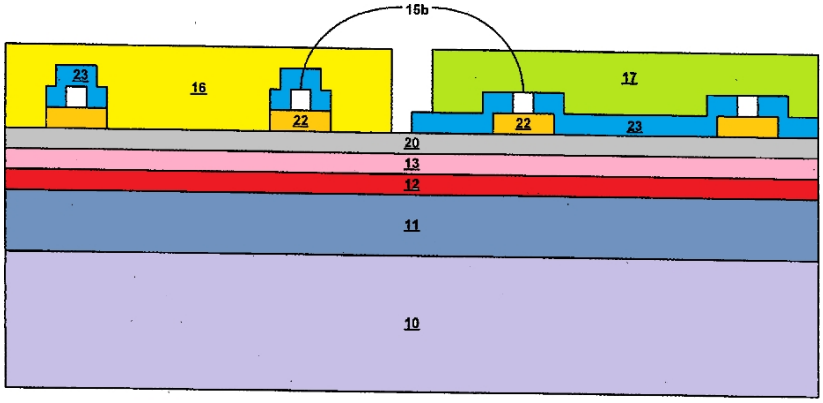


Fig. 7

As can be seen from the figures above, one or more n-type layers
(11) is formed over a substrate (10). An active area (12) and one or more p-type layers (13) are located above this. A plurality of through holes (14) are formed in the device up to the n-type layers (11) by etching away the p-type layers (13) and the active region (para. [0027]). Feature group 3 (mesa-etched areas) is thus also disclosed. In the figure 6 shown above, the n-type metal (21) is introduced into the through holes (14).

One or more p-type metal layers (20), which form the electrode or the contact to the p-type layers (13), are applied to the p-type layers, wherein the p-type metal can be a reflective material, for example silver (para. [0029]). The p-type metal layer (20) therefore fulfills the requirements for a reflective metal layer within the meaning of the patent in suit (feature 4.1.1.).

As the skilled person can see from para. [0030], an optional protective metal layer (50), which is not shown in Figures 6 and 7 for reasons of clarity (see para. [0038]), can be arranged above the p-metal layer. This prevents the silver p-metal from migrating into other parts of the component. It is therefore a metal barrier layer within the meaning of feature 4.2.2.

A dielectric layer (22) insulates the p-type metal (20) and the protective metal (50) from an n-type metal, the dielectric layer being removed at the bottom of the via (14). The dielectric layer (22) is therefore a lower insulating layer covering the entire surface of the structure, through which the semiconductor layer of the first conductivity type is exposed in the mesa- etched areas (features 5., 5.1. and 5.3.2.). Since the substructure connection
(16) is connected to parts of the p-metal of the device (para. [0036]), the surface of the reflective electrode must also be partially exposed through it (feature 5.3.1.).

As Figure 5 illustrates, the lower insulating layer also has openings that are arranged near one edge of the substrate (feature 5.2.). An exact and complete arrangement of the openings at the edge is not required for this.

c)
In the present case, there is no need for a final decision as to whether the through-hole vias (14), the grid structure formed by the horizontal and vertical connections (15a, 15b) meets the requirements for a stromal expansion layer within the meaning of the patent in suit. It is equally irrelevant whether the dielectric layer (23) identified by the defendant 2) as the upper insulating layer is actually arranged on the current expansion layer as required by feature 7.1. In any event, it is undisputed that D 3 does not disclose an expansion layer including the coefficients of thermal expansion within the meaning of feature group 4.2.3.

d)
As the skilled person understands from paragraph [0031] of D 3, the barrier layer (50) is a layer which prevents the migration of silver into other parts of the device. However, materials that can be used in such a layer are not mentioned in D 3. The skilled person will therefore look for materials for this layer in the prior art and will find what he is looking for in D 5.

This also describes a light-emitting diode, which is why the person skilled in the art will consider this document as suitable prior art. There, a design is disclosed to the skilled person in which a metal layer (7) of paladium (Pd) or platinum (Pt) is applied to a first reflective metal layer (6) (para. [0016]), which prevents the migration of the silver from the reflective metal layer (cf. para. [0071] a.E).

If the skilled person takes a closer look at the explanations in paragraph [0016] of D 5, he will find the following, among other things:

> "[...] The second metal film may have any composition basically **as long as it is composed mainly of palladium and/or platinum**. [...]";

And in German translation:

> "[...] The second metal layer can basically have any composition **as long as it consists mainly of palladium or platinum.** [...]"
>
> (emphasis added)

In addition to this, the person skilled in the art, as explained, takes from paragraph [0071] of the citation that such a layer formed from palladium or platinum prevents the migration of the silver contained in the first metal layer. If the second metal layer is to consist of palladium and/or platinum and if it also has the required barrier effect, the person skilled in the art draws the conclusion that he can form the metal barrier layer disclosed in D 3 at least from palladium or platinum. In principle, he therefore has suitable materials at his disposal for the design of such a metal barrier layer.

Before the skilled person answers the question of whether, against this background, he actually uses palladium and platinum in the design of the metal barrier layer disclosed in D 3, he will first deal with the other properties of such a layer. In this respect, too, he will find what he is looking for in D 5 and more precisely in paragraph [0069], where it says:

"[...] The linear expansion coefficients of Ag and Pd are almost equal to each other: 19 x 10^{-6} /K and 11x 10^{-6} /K, respectively. **Therefore, even when the temperature changes, distortion due to a thermal stress hardly occurs between the first and second metal films 6 and 7** [...]**.**"

In German:

" [...] The linear expansion coefficients of Ag and Pd are almost the same: 19 x 10^{-6} /K and 11 x 10^{-6} /K respectively. **Therefore, there is hardly any deformation between the first and second metal layers 6 and 7 due to thermal stresses, even with temperature changes.** [...]"

(emphasis added)

If D 5 teaches the skilled person that a metal barrier layer made of palladium or platinum provides the necessary barrier effect in relation to the underlying silver layer and at the same time it is disclosed to him that there is virtually no tension between the silver and palladium layers, at least in the case of a metal barrier layer made of palladium, the skilled person has no reason to look for a solution to reduce possible tensions between the two layers and possibly to provide a further (stress-relieving) layer for this purpose. For the design of the metal barrier layer with palladium, he already has a material at his disposal in which such tensions do not occur in the first place. He will therefore design the metal barrier layer starting from the D 3 using the D 5 made of palladium and is thus at the end of his considerations. Based on D 3, he therefore has no reason, even in conjunction with D 5, to provide a three-layer sequence (reflective metal layer, stress-relief layer, metal barrier layer), but will instead leave it at a two-layer structure of reflective metal layer and metal barrier layer.

This also applies taking into account the further embodiment example disclosed in paragraphs [0074] - [0081] of D 5. Insofar as further metal layers (10, 11), for example consisting of titanium (Ti) or tungsten-titanium (TiW), are applied to the metal layer (7), these serve to prevent the diffusion of gold (Au) or Sn (tin) (see para. [0077]). However, none of these substances is disclosed in D 3 as a component of the reflective metal layer. According to the description there, this consists of a highly reflective material such as silver (para. [0029]). However, its diffusion is also (already) prevented by the metal layer (7) and thus the palladium or platinum layer in the design disclosed in the third embodiment example of D 5. The skilled person who, starting from D 3, goes in search of a material for the metal barrier layer disclosed therein, therefore has no reason to provide the design shown in D 3 with further layers and in particular with an additional metal barrier layer formed, for example, from titanium or tungsten-titanium, even taking into account the third embodiment example of D 5. This applies all the more since the application of further metal layers supplementing the metal layer (7) is recommended in D 5 if a further layer of a slightly diffusing material such as tin (Sn) or gold (Au) is arranged over this (second) metal layer (cf. para. [0016], "[...] If a layer (e.g. a pad electrode or soled layer) containing a metal that easily diffuses such as tin (Sn) or gold (Au) is formed above the second metal film, it is preferable that a third metal film composed of e.g. at least one metal selected from the group consisting tungsten, molybdenum, and titanium is provided on the second metal film, in order to prevent tin and gold from reacting with the second metal film."). The person skilled in the art therefore understands the other metal layers more as barrier layers for the pads, but not for the reflective metal layer.

4.

D 2 (US 2009/0283787 A1, translation of Annex D 2a) also eliminates the inventive step, neither on its own nor in combination with D 1 (US 2010/0117111 A1).

a)

The fact that Figure 3 of D 2, shown below in a colored version, is a realistic starting point for the assessment of inventive step is rightly not in dispute between the parties:

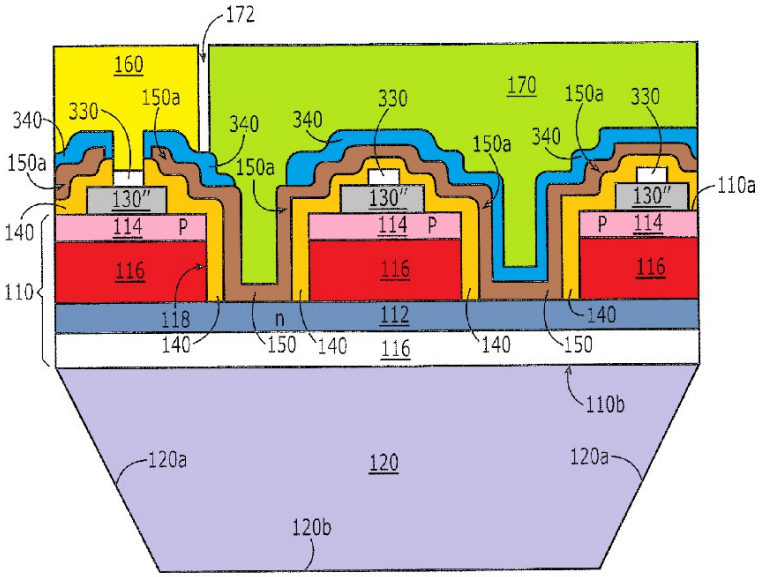


FIG. 3

Shown are a substrate (120), an n-type layer (112) and a p-type layer (114) (see par. [0040]). In the region (116) arranged between the latter, further layers and thus in particular also the active layer necessary for the function of the LED can be arranged. Thus disclosed is a light-emitting structure of a light-emitting diode within the meaning of feature group 2.

A reflective cathode contact (150, "n-contact") contacts the n-type layer (112) and extends through the transparent insulating layer (140) and onto the transparent insulating layer located outside the anode contact (130) (para. [0041]). In the regions in which the cathode contact (150) contacts the p-type layer (112), there are therefore mesa-etched regions (150) within the meaning of feature group 3, which are formed from the surface of the p-type layer and thus the surface of the second semiconductor type to the semiconductor layer of the first type (feature group 3). Since the insulating layer (140) covers both semiconductor layers and the mesa-etched areas, it is basically a lower insulating layer within the meaning of feature group 5. However, in the design shown in Figure 3, the electrode (130'') is trans- parent (cf. para. [0065]), so that the lower insulating layer does not cover a reflective electrode, as required by feature 5.1.5. Furthermore, the lower insulating layer does not have any openings arranged near the edge of the substrate within the meaning of feature 5.2. even on the basis of the broad understanding.

The reflective cathode contact (150) covers the semiconductor layer (116) and is electrically connected to it. It is therefore a current-expanding layer (210) within the meaning of the patent in suit. The insulating layer (340) prevents the anode and cathode contact surfaces (160, 170) from short-circuiting each other. It is arranged on the current expansion layer (210), whereby both the current expansion layer (210) and the reflective electrode (140) are partially exposed through this layer. The insulating layer (340) thus discloses an upper insulating layer having all the features of feature group 7.

Finally, the anode pad (160) and the cathode pad (170) fulfill all the requirements of features 7 and 8; these are the first and second pads within the meaning of patent claim 1.

b)
It is undisputed that Figure 3, together with the associated description, does not disclose a reflective electrode within the meaning of feature group 4. or openings in the insulating layer which are arranged near an edge of the substrate (feature 5.2.).

It is irrelevant whether an arrangement of the openings in the vicinity of an edge, as claimed by the defendant 2), results from D 1 (US 2010/0117111 A1) and whether the skilled person in particular also combines both writings with each other. Even if this were the case, there is no obvious disclosure of a reflective electrode within the meaning of feature group 4.

A reflective electrode is disclosed in Figure 2 of the citation, which describes a further embodiment example (see para. [0059], reflective anode contact (130')). Even though Figures 2 and 3 are part of the same document, they show different embodiments. What reason the skilled person should have to combine the two self-contained solutions with each other, without falling into an always inadmissible retrospective view, is not apparent and the defendant 2) has also not been able to demonstrate this.

In the design shown in Figure 3, the transparent insulating layer (140) extends over the transparent anode contact (130''). The reflective cathode contact (150) extends on the transparent insulating layer (140). This in turn extends on the transparent anode contact (130''), which lies outside the section on which the current distribution layer (330) is provided. The reflective cathode contact (150) also extends to the transparent insulating layer (140), which is located on the transparent anode contact (130'') outside this section. In this way, an integrated n-contact hybrid mirror is provided that reflects light passing through the transparent anode contact (130'') back into the diode region (110) (see par. [0066]). Accordingly, embodiments of Figure 3 may provide a reflective structure comprising a reflective surface of the cathode contact (150) comprising a reflective surface of the cathode contact (150) ohmically contacting the n-type layer (112) and a reflective surface of an extension (150a) of the cathode contact (150) extending onto the transparent anode contact (130'') in combination with the transparent insulating layer (140) (par. [0067]).

Figure 3 thus reveals a self-contained structure consisting of a transparent insulating layer on a transparent anode contact, which is combined with a reflective cathode contact. With the cathode contact (150), the design shown in Figure 3 therefore already has a reflective component through which all of the light emitted from the diode contact is transmitted.
(110) into the anode and cathode region is reflected back into the diode region, with the exception of the negligible light which is absorbed by the barrier layer (210) on the side walls of the anode contact (130) (para. [0064]). Based on this, the person skilled in the art has no reason to replace the transparent diode arranged under the reflective cathode contact (150) with a reflective diode as shown in Figure 2.

D. Merits of the action

The action is well-founded. Since the attacked embodiment makes use of the technical teaching of the patent in suit in accordance with the literal meaning, the defendants directly infringe the patent in suit in accordance with the literal meaning by offering and marketing the attacked embodiment (Art. 25 (a)

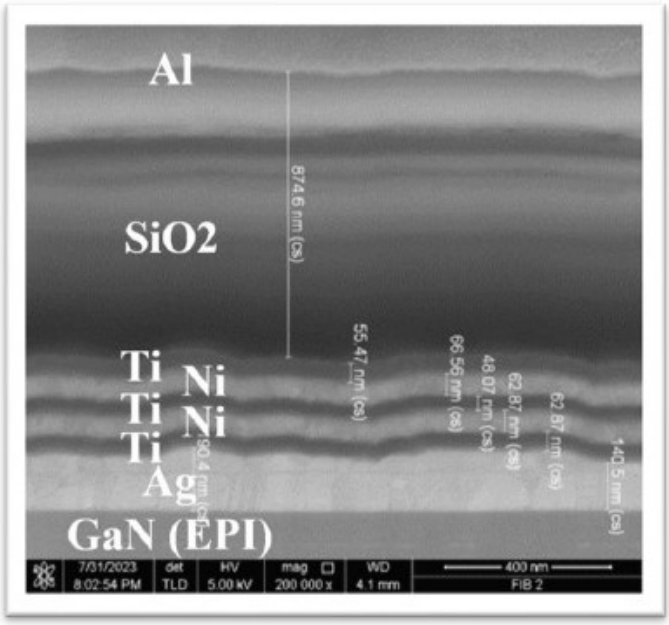
UPCA).

I.
Quite rightly, there is no dispute between the parties as to whether the characteristic groups 1. to 4.2.2., 5.3. and 7.2. to 9. have been realized, so that no further explanation is required in this respect.

II.
In addition, the contested embodiment also makes use of the other features of the patent in suit.

1.
The reflective electrode of the attacked embodiment not only has a metal barrier layer (feature 4.2.2.), but also a relaxation layer within the meaning of feature 4.2.3.1.

a)
In the figure shown below, taken from p. 10 of the replica in the infringement proceedings, the layer sequence to be found in the attacked embodiment, including the respective layer thicknesses, can be recognized:



The second GaN semiconductor layer is followed by a reflective metal layer made of silver, which is followed by the titanium-nickel-titanium-nickel-titanium layer sequence. This is followed by a silicon dioxide layer and an aluminum layer.

b)
In support of its allegation of infringement, the plaintiff argued that the upper titanium layer is the metal barrier layer within the meaning of the patent in dispute. The underlying titanium-nickel-titanium-nickel layer sequence is to be regarded as the stress-relief layer. This is a composite layer with a coefficient of thermal expansion (CTE) of 11.79 µm/(m-K). This lies between the CTE of pure silver (18.9 µm/(m-K)) and that of pure titanium (8.6 µm/(m-K)), in each case at 20 °C (see replica of March 25, 2024, p. 11). Based on this, the titanium-nickel-titanium-nickel composite layer in the attacked embodiment is to be regarded as a stress-relief layer whose coefficient of thermal expansion, as defined by feature 4.2.3.1.2.

The upper titanium layer, which acts as a metal barrier layer, is located between the reflective metal layer of silver and the upper titanium layer.

As the plaintiff has further explained, the respective layers in the attacked embodiment have a thickness of 50 to 65 nanometers. Such thin layers would influence each other. For example, a nickel layer expands more than a titanium layer and therefore exerts tension on this titanium layer. Within the LED structure, this is manifested by the fact that the nickel layer expands slightly less. The bond between the two layers thus expands to an extent that lies between the isolated expansions of nickel and titanium. In the attacked embodiment, the lowest titanium layer is adjacent to the relatively strongly expanding silver, which means that the titanium layer adjacent to the silver layer behaves differently than the one forming the metal barrier layer. The layers are all connected to each other. Therefore, the silver layer expands more than the titanium and exerts a tension on the titanium in addition to the nickel layer. This effect increases the tension exerted by the nickel layer on the other side. With a layer thickness in the two-digit nanometer range, as found in the attacked embodiment, this effect is also relevant for the layers as a whole. The metal barrier layer, on the other hand, lies between nickel and silicon dioxide, which has a lower thermal expansion than silver. The stress effect on this titanium layer is therefore lower and the metal barrier layer consequently expands less than the bottom layer of the stress-relief layer. Both titanium layers would therefore differ in their thermal expansion and thus also in their assignment to the layers according to the patent.

c)
The defendants have not specifically disputed this submission. It is therefore to be regarded as undisputed in accordance with R. 171.2 VerfO.

aa)
Insofar as the defendants, referring to the prior art shown in Figure 1, always want to assign nickel to the metal barrier layer, they are thus contradicting both sub-claims 6 and 9 and paragraphs [0033] - [0035] of the patent in suit. There, nickel is expressly mentioned as a possible component of both the metal barrier layer and the stress-relief layer.

Nor can the defendants successfully argue that titanium is a component of the metal barrier layer according to the invention, which is why it is excluded to regard a combination of "composite layers" consisting of individual layers of titanium, nickel, titanium and nickel as a stress-relief layer. Paragraph [0033] expressly provides for such a design as a possibility of a layer sequence in accordance with the patent by stating, inter alia:

> "[...] and the **barrier metal layer** may include one of [...] **Ti** [...]. Further, the **stress relieving layer** may be formed [...] as a composite layer of a plurality of metals selected from [...] **Ni** [...] **Ti** [...]."

And in German translation:

> "... and the **barrier metal layer** may include one of [...] **Ti** [...]. In addition, the **stress relief layer** [...] may be formed as a composite layer of a plurality of metals selected from [...] **Ni**, [...], **Ti**."

The patent in suit itself therefore considers the combination of a metal barrier layer of titanium with a stress-relief layer of titanium and nickel designed as a composite layer to be in accordance with the invention.

bb)
The plaintiff's assertion that the titanium-nickel-titanium-nickel layers to be found in the attacked embodiment form a composite layer with a coefficient of thermal expansion of 11.79 µm/(m-K) has not been specifically countered by the defendants, nor has the explanation of the mutual influence of the layers on each other, which has already been reproduced in detail above. The merely general assertion that in the attacked embodiment there are five individual layers and no composite layer is, against the background of the technical relationships described in detail by the plaintiff, just as little sufficient for a concrete dispute as the reference to the fact that the layer sequence to be found in the attacked embodiment corresponds to the design explained in Figure 1 of the patent in suit.

(1)
The fact that the individual layers cannot be distinguished from one another solely on the basis of the composition of matter, taking into account the assignment of certain substances to several layers in the patent in suit, was explained in detail by the local division in the context of the interpretation. The mere reference to the materials contained in the metal barrier layer shown in Figure 1 therefore does not help the defendants to succeed.

(2)
With regard to the denial of the existence of a composite layer, the defendants explained their understanding of such a layer in more detail at the hearing when asked that it must be layers that merge into each other with the participation of atoms. The defendants were not able to counter the objection raised by the plaintiff that an alloy, but not a composite layer, is defined in this way.

The patent in suit also recognizes such alloys (cf. para. [0033] f.]), but distinguishes them from composite layers. Both terms are therefore not to be equated. For the existence of a composite layer it is sufficient, but also necessary, that the superimposed layers mutually influence each other. The fact that this is the case with the attacked embodiment has been explained by the plaintiff in detail and taking into account the layer thicknesses to be found in the attacked embodiment. The defendants have not dealt with this argument of the plaintiff, which is linked to the mutual influence of the individual layers, in detail and have therefore not specifically disputed the corresponding factual assertions. In particular, it is therefore undisputed (R. 171 VerfO) that, based on the layer thicknesses to be found in the attacked embodiment, the titanium layer adjacent to the silver behaves differently from the titanium layer adjacent to the silicon dioxide layer. The fact that both layers are titanium layers therefore does not preclude classifying the former as part of the composite layer forming the stress-relief layer and the latter as a metal barrier layer within the meaning of the patent in suit.

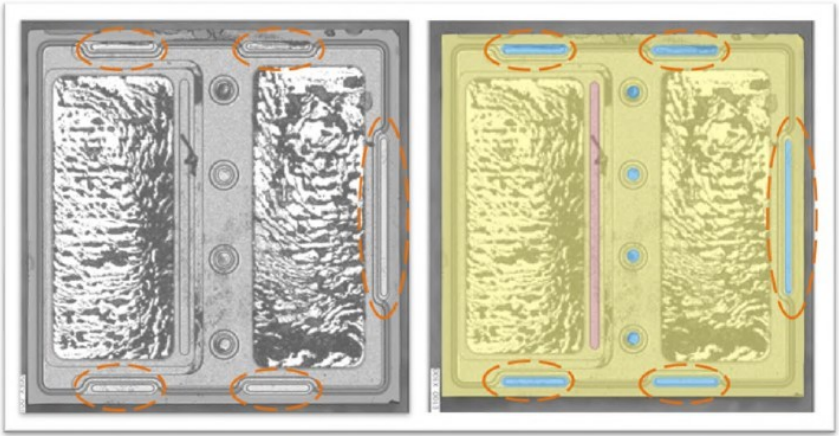
Insofar as the defendants continue to object to the calculation method used by the plaintiff to determine the coefficient of thermal expansion of the composite layer (see Annex LL 13), this argument does not justify a different assessment because, according to the invention, it is not the exact values of the coefficients of thermal expansion that are important, but only the ratio of the coefficients of thermal expansion of the individual layers to each other. According to the plaintiff's submission, this is within the patentable range, without the defendants having specifically disputed this. In particular, there is no submission by the defendants regarding the coefficient of thermal expansion of the titanium-nickel-titanium-nickel composite layer. Since feature 4.2.3.1.2. refers to the coefficient of thermal expansion of the stress-relief layer as a whole and therefore, in the case of the embodiment as a composite layer, not to its individual layers, the defendants are not assisted in their argumentation on the coefficient of thermal expansion of the titanium-nickel-titanium-nickel composite layer.

coefficients of titanium and nickel, and thus the respective individual layers, do not help at this point.

cc)
On this basis, the defendant's further reference to the fact that the nickel and titanium layers in the contested embodiment are provided solely as a metal barrier layer (duplicate, p. 9 center) does not lead to a different result.

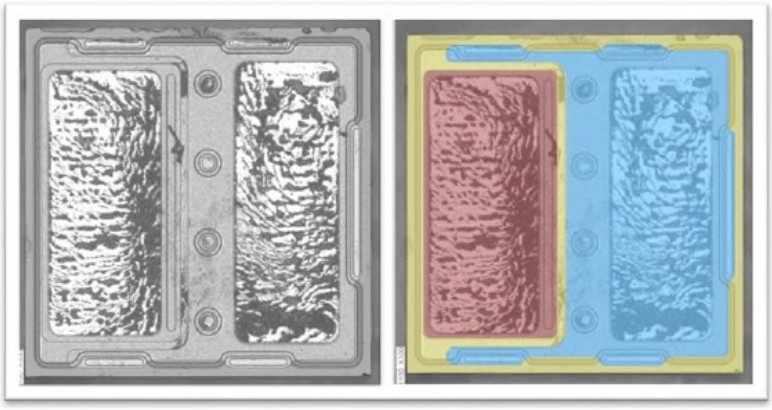
If the titanium-nickel-titanium-nickel composite layer has a coefficient of thermal expansion that is between that of the reflective metal layer and that of the metal barrier layer, it also acts at least as a stress relief layer. In this case, it relieves the stress exerted on the reflective metal layer and thereby prevents the reflective metal layer from being detached from the second semiconductor layer (see para. [0026]). The patent in suit does not aim at a complete prevention of stresses. Rather, the invention merely aims to reduce the voltage caused by the reflective layer (para. [0017]). The fact that the titanium-nickel-titanium-nickel composite layer acting as a stress-relieving layer may also already block metal elements and ions from the reflective metal layer does not lead out of the scope of protection. On the one hand, the patent in suit does not exclude the possibility that the stress-relief layer also functions as a metal barrier layer. Only a design in which there is no further layer acting as a metal barrier layer in addition to the stress-relief layer is excluded. However, such a case does not exist in the embodiment described, where the titanium-nickel-titanium-nickel composite layer is followed by a further titanium layer that is to be classified as a metal barrier layer. Secondly, the assessment of the question of infringement does not depend on whether the metal barrier layer actually has a barrier effect when the attacked embodiment is used. It is sufficient, but also necessary, that it has a corresponding suitability. This is indisputably the case with a titanium layer.

2.
The fact that the lower insulating layer of the attacked embodiment covers the entire surface of the structure and at least also has openings near the edge of the substrate can be seen from the figure shown below, taken from p. 58 of the application:



The corresponding openings are marked in the shape of an ellipse in the figure shown above on the right. Insofar as there are further circular openings in the center of the structure, this does not lead out of the scope of protection of the patent in suit. Patent claim 1 does not exclude such further openings on the basis of the understanding of the scope of protection already worked out in detail.

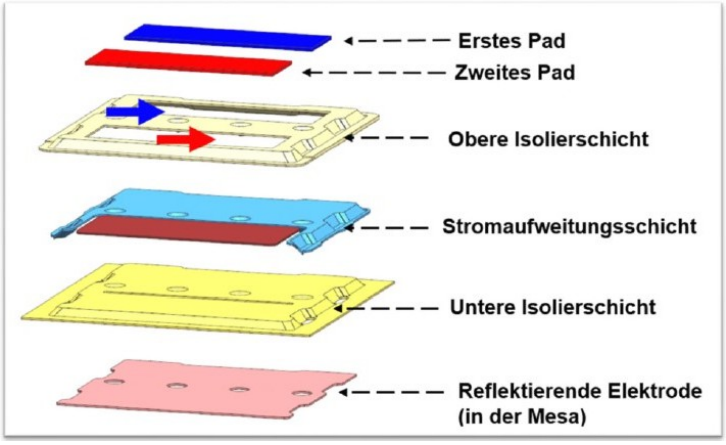
3.
Based on this, the contested embodiment also has a current expansion layer within the meaning of feature group 6:



The current expansion layer of the attacked embodiment is colored blue in the figure shown above, taken from p. 67 of the application.

The area shown on the left-hand side of the figure does not prevent the realization of the technical teaching protected by patent claim 1. A complete covering of the first semiconductor layer by the current expansion layer is not a condition for the realization of the claimed technical teaching.

4.
Finally, the contested embodiment also has an upper insulating layer within the meaning of the patent in suit (feature group 7). Its presence is illustrated by the following schematic diagram, taken from p. 70 of the statement of claim:



It can be seen that the upper insulating layer is formed on the current expansion layer. It can also be seen that both the current expansion layer and the reflective electrode are partially exposed through the upper insulating layer.

III.
By offering and marketing the attacked embodiment, the defendants have indisputably also committed acts of infringement within the meaning of Art. 25 (a) UPCA. At the same time, the offering and placing on the market creates a rebuttable presumption that the defendants also use the attacked embodiment or import or possess it for the purposes of offering, placing on the market or using it (UPC_CFI_7/2024 (Local Division

Düsseldorf), decision of 03.07.2024 - Kaldewei v. Bette).

E. Legal consequences

The previous statements justify the legal consequences explained in detail below:

I.
Taking into account the circumstances of the case, the plaintiff has a right to prohibit the continuation of the infringement pursuant to Art. 25 (a) UPCA in conjunction with Art. 63 (1) UPCA. Art. 63 (1) UPCA.

II.
The plaintiff also has a right to information pursuant to Art. 25 (a) UPCA in conjunction with Art. 67 UPCA. Art. 67 UPCA. There are no objections with regard to the type and manner of information requested.

III.
The decision regarding the recall from the distribution channels in respect of the directly infringing products is justified under Art. 64 (2) (b), 4 UPCA. The most recent version of the request is also not objectionable from the point of view of certainty.

IV.
The same applies with regard to the requested permanent removal from the distribution channels. In this respect, the requested order is based on Art. 64 (2) (d), 64 (4) UPCA.

According to the wording of the UPCA, permanent removal from the distribution channels is a separate measure from recall. It accompanies the recall, whereby removal can only be considered if the infringer has the actual and legal possibilities to do so. The formulation of concrete and sufficiently specific measures must be based on this (see UPC_CFI_7/2024 (Düsseldorf Local Chamber), decision of 03.07.2024 - Kaldewei v. Bette). The wording of the claim takes sufficient account of this.

V.
The destruction order is based on Art. 64 para. 2 (e), 64 para. 4 UPCA.

The court can order ex officio that the measures in question be carried out at the infringer's expense, unless special reasons are put forward to the contrary. However, this is not the case here, so that a corresponding order could be issued by operation of law. As the defendants did not invoke any disproportionality in this respect, further specification of the application was unnecessary.

VI.
The award of damages on the merits is possible on the basis of Art. 68 (1) UPCA. With due care, the defendants should have recognized that their actions infringed the patent in suit.

VII.
The threat of a penalty payment for failure to act (Art. 63 para. 2 UPCA) does not raise any objections. This also applies from the point of view of proportionality. The threat of a penalty payment of up to EUR 250,000 per case of infringement gives the local division the necessary flexibility to take into account the respective circumstances of the individual case, including the infringer's conduct, in the event of an infringement and, based on this, to impose a penalty payment in accordance with Art. 82 para. 4 sentence 2 UPCA.

i.V.m. R. 354.4 VerfO to be able to set an appropriate penalty payment.

F. Basic cost decision

Pursuant to Art. 69 para. 2 UPCA in conjunction with R. 118.5 of the Rules of Procedure, a basic decision on costs had to be made.

Since the defendants have lost the action in its entirety, it is justified to order them to pay the costs in their entirety and to each pay half of the costs.

The action for annulment brought solely by defendant 2) is unfounded. Defendant 2) must therefore bear its costs.

Pursuant to Art. 69 para. 1 of the Rules of Procedure, the costs are to be borne up to an upper limit set in accordance with the Rules of Procedure. With an amount in dispute of EUR 500,000, the table adopted by the administrative exclusion on April 24, 2023 on the basis of R. 152.2 of the Rules of Procedure provides for an upper limit for the recoverable costs of up to EUR 56,000, which in the present case was to be set for both the action and the action for annulment. Insofar as the parties mutually recognized a recoverable amount of EUR 100,000 as recoverable at the hearing, it must be assumed, in the absence of any indications to the contrary, that this amount is divided equally between the action and the action for annulment. Accordingly, it is below the fixed upper limit. There are therefore no objections to the eligibility for reimbursement.

G. Enforceability

Insofar as the defendants object to the immediate enforceability of an injunction on the grounds that the LEDs at issue are standard components that represent a minimal fraction of cell phones, which is why there is a blatant disproportion to the respective cell phone, the Chamber is unable to accept this objection. The fact that the defendants would suffer disproportionate damages as a result of enforcement is at best a general assertion, without specifically naming such possible damages. The defendants have not been able to sufficiently demonstrate that the ban on the sale of *a certain cell phone* significantly restricts the defendants as electronics retailers. Against this background, the plaintiff's interest in the effective enforcement of her rights takes precedence.

H. No security deposit

Pursuant to Art. 82 (2) UPCA, R. 118.8 S.2 VerfO, the court may make any order or measure subject to the provision of security, which it must set. However, the local division sees neither a reason nor a need for such an order in the present case.

I.
As the wording of the aforementioned standard already makes clear, the local division has discretion when ordering the provision of security, whereby the plaintiff's interest in the effective enforcement of its property right must be weighed against the interest in the effective enforcement of possible claims for damages in the event that the judgment is subsequently set aside.

A case-by-case assessment is therefore always required. Factors to be considered when deciding whether to order security include the financial situation of the plaintiff, which may give rise to a justified and real concern that a possible claim for damages may not be possible or only possible with a limited amount of security if the decision of the court of first instance is reversed or amended.

can be enforced and/or executed with disproportionate effort. Whether and to what extent such factors exist is to be determined on the basis of the facts and arguments presented by the parties, no differently than in the case of an application for the provision of security pursuant to R. 158 of the Rules of Procedure. If the local division makes an order or measure dependent on the provision of security, this serves to protect the position and potential rights of the defendant. Its protection must be weighed against the burden placed on the plaintiff by the order to provide security. Against this background, it is up to the defendant to present facts and arguments as to why it appears appropriate in the specific case to make the order or measure dependent on a security deposit to be determined by the court in accordance with R. 118.8 of the Rules of Procedure. If the defendant has complied with this, it is incumbent on the plaintiff to substantiate these facts and reasons, especially as he usually has knowledge and evidence of his financial situation. It is also incumbent on the plaintiff to explain, if necessary, why, despite the reasons put forward by the defendant, his interest in enforcing his protective right without the provision of security outweighs the defendant's interest (see on the application for the provision of security pursuant to R. 158 VerfO: UPC_COA_328/2024, order of 26.08.2024 - Ballinno v. Kinexon Sports; UPC_CFI_373/2024 (LK Düsseldorf), order of 05.08.2024 - Sodastream v. Aarke; UPC_CFI_514/2023 (LK Munich), order of 23.04.2024 - Volkswagen v. NST m.w.N.).

II.
On this basis, the defendant's submission offers no reason to make enforcement dependent on the provision of security in the present case.

The defendants are dealers who are prohibited from offering and selling a specific cell phone. It cannot be inferred from their submission that this alone threatens them with damages that cannot be effectively enforced directly against the plaintiff. This applies all the more to the requested security in the amount of EUR 5,000,000, which corresponds to 10 times the amount in dispute. In order to order such security, it would have been necessary to specifically demonstrate the corresponding potential damages, which is lacking here.

DECISION:

A. The defendants are prohibited from doing so,

Light emitting diodes

on the territory of the Republic of Austria, the Kingdom of Belgium, the Federal Republic of Germany, the French Republic, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the Kingdom of Sweden

to offer, place on the market, use and/or import and/or possess for the aforementioned purposes,

if these are present:

a light-emitting structure formed on a substrate (100) and comprising a semiconductor layer (110) of a first conductivity type, an active layer (120) and a semiconductor layer (130) of a second conductivity type;

mesa-etched regions (150) formed from the surface of the semiconductor layer (130) of the second conductivity type to the semiconductor layer (110) of the first conductivity type;

a reflective electrode (140) formed on the semiconductor layer (130) of the second conductivity type and comprising a reflective metal layer (142), a metal barrier layer (144) and a relaxation layer (143) formed between the reflective metal layer (142) and the metal barrier layer (144), wherein the relaxation layer (143) has a coefficient of thermal expansion between the coefficient of thermal expansion of the reflective metal layer (142) and the coefficient of thermal expansion of the metal barrier layer (144);

a bottom insulating layer (200) covering an overall surface of the structure formed by the first conductivity type semiconductor layer (110), the active layer (120), the second conductivity type semiconductor layer (130), the metal etched regions (150) and the reflective electrode (140), wherein the bottom insulating layer (200) enables that an upper surface of the reflective electrode (140) is partially exposed therethrough, and further having openings disposed near an edge of the substrate which allow the semiconductor layer (110) of the first conductivity type to be exposed therethrough in the mesa-etched regions (150);

a current-expanding layer (210) formed on the lower insulating layer (200) covering the semiconductor layer (110) of the first conductivity type and electrically connected to the semiconductor layer (110) of the first conductivity type;

an upper insulating layer (220) formed on the current expansion layer (210), wherein both the current expansion layer (210) and the reflective electrode (140) are partially exposed through the upper insulating layer (220);

a first pad (230) electrically connected to the current-expanding layer (210) exposed through the upper insulating layer (220); and

a second pad (240) electrically connected to the reflective electrode (140) exposed through the top insulating layer (220).

B. The defendants are sentenced,

I. to pay the court a penalty payment of up to EUR 250,000 for each case of non-compliance with the order under section A;

II. within a period of 30 days after service of the notification within the meaning of R. 118.8 sentence 1 of the Regulation and, if applicable, the certified translation, the products delivered since January 4, 2023 in accordance with point A. at the defendant's expense

1. from the distribution channels by informing the third parties from whom the infringing products are to be recalled that this court has found that the products infringe European Patent EP 3 926 698 B1, whereby the defendants must give the third parties a binding undertaking to reimburse the costs incurred, to bear the packaging and transport costs incurred, to reimburse the customs and storage costs associated with the return of the products and to take back the products,

and

2. permanently remove the products from the distribution channels by ordering the defendants, with reference to the fact that this court has found that the products infringe the European patent EP 3 926 698 B1, to require third parties who are commercial purchasers but not end customers, with regard to the products referred to in point A., to cancel all orders relating to the products referred to in point A. and to provide the Court and the applicant with written proof of the action taken within the aforementioned period of 30 days after service of the notification within the meaning of R. 118.8 sentence 1 VerfO and, if applicable, the certified translation.

III. to provide the applicant with information on

1. Origin and distribution channels of the products referred to in point A. delivered, received or ordered since January 4, 2023,

2. the quantities delivered, received or ordered since January 4, 2023 and the prices paid for the products referred to in point A., and

3. the identity of all third parties involved in the manufacture or distribution of products referred to in point A. since January 4, 2023;

IV. within a period of 30 days after delivery of the notification within the meaning of Art.
R. 118.8 sentence 1 VerfO and, if applicable, the certified translation, to destroy the products in its direct or indirect possession or in its ownership in accordance with letter A. at the defendant's expense.

C. The defendants are obliged to compensate the plaintiff for all damages which it has suffered and will suffer as a result of the acts referred to in point A. during the term of EP 3 926 698 B1.

D. The action for annulment is dismissed.

E. The defendants shall each bear half of the costs of the action.

Defendant 2) shall bear the costs of the action for annulment.

F. The amount in dispute for the action and the action for annulment is set at EUR 500,000.00 each.

G. The upper limit of the reimbursable representation costs is set at EUR 56,000 for both the action and the action for annulment.

H. The orders under letters A. and B. I. to IV. are only enforceable after the plaintiff has notified the court which part of the orders it intends to enforce and has submitted a certified translation of the orders into the official language of the Contracting Member State in which enforcement is to take place and after the defendants have been served with the notification and the (respective) certified translation.

DETAILS OF THE ARRANGEMENT:

Main file reference ACT_579244/2023 and CC_3580/2024

UPC number: UPC_CFI_363/2023

Type of proceedings: Action for infringement and action for annulment

Düsseldorf on October 10, 2024
NAMES AND SIGNATURES

Presiding Judge Thomas	Ronny Thomas Digital signed from Ronny Thomas Date: 2024.10.09 17:27:42 +02'00'
Legally qualified judge Dr. Thom	Anna Bérénice Dr. THOM Digitally signed by Anna Bérénice Dr. THOM Date: 2024.10.04 15:39:11 +02'00'
Legally qualified judge Mlakar	MOJCA MLAKAR Digitalno podpisal MOJCA MLAKAR Date: 2024.10.04 13:44:23 +02'00'
Technically qualified judge Sani	Alessandra Sani Digital signed by Alessandra Sani Date: 2024.10.03 11:49:49 +02'00'
For the Deputy Chancellor Boudra-Seddiki	Rachida Boudra-Seddiki Digitally signed by Rachida Boudra-Seddiki Date: 2024.10.04 14:48:50 +02'00'

APPOINTMENT INFORMATION:

An appeal against this decision may be lodged with the Court of Appeal within two months of service of the decision by any party whose petitions were unsuccessful in whole or in part (Art. 73 para. 1 UPCA, R. 220.1 (a), 224.1 (a) RP).

Information on enforcement (Art. 82 UPCA, Art. 37 para. 2 EPGS, R. 118.8, 158.2, 354, 355.4 RP):

A certified copy of the enforceable judgment is issued by the Deputy Registrar at the request of the enforcing party, R. 69 RegR.

This decision was announced in open court on October 10, 2024. Presiding Judge Thomas

Ronny Thomas

Digitally signed by Ronny Thomas
Date: 2024.10.10 09:45:30 +02'00'