

## TRANSLATION CERTIFICATION

Date: 2025/08/09

To whom it may concern:

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- 'Samsung .\_. Pictiva \_ DE391 \_ LG München I \_ 21 O 2603\_24 \_ Replik vom 18.09.2024\_geschwaerzt.pdf'

Samuel Wu, Managing Director of this company, attests to the following:

"To the best of my knowledge, the aforementioned documents are a true, full and accurate translation of the specified documents."



Signature of **Samuel Wu**, Managing Director

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**Defendants receive a copy pursuant to Section 195 of the German  
Code of Civil Procedure (ZPO)**

**Case No.: 21 O 2603/24**

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Confidential parts redacted**

Munich, September 18, 2024  
Our reference: 51112-0002LL1

**Reply Brief**

In the matter of

**Pictiva Displays International Ltd.**     **./.** **Samsung Electronics GmbH**  
**Peterreins Schley**     **et al.**  
*Peterreins Schley*     *A&O Shearman LLP, Munich*

concerning patent infringement (DE ‘391),

we thank the Court for the granted extension of time and submit the  
following response to the Defendants’ statement of defense dated June 21,  
2024 (hereinafter also referred to as “SoD”).

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Due to the main request submitted in the parallel nullity proceedings (more on this shortly), we **supplement** the request under **Section B.I.1** of the amended complaint dated March 7, 2024, as follows (changes from the original request indicated by strike-through and underlining):

**I.** The Defendants shall be ordered

- 1.** **to cease and desist**, under penalty of a fine to be determined by the court for each violation, up to EUR 250,000.00 – or alternatively, imprisonment – or imprisonment of up to six months, in the case of repeated violations up to a total of two years, with the imprisonment to be enforced against the respective Managing Director, from:
  - a) offering, placing on the market, using, or possessing for said purposes, within the Federal Republic of Germany, organic electronic components, each comprising a substrate, a first electrode, a second electrode, an electron-conducting layer arranged such that it is electrically conductively connected to at least one of the electrodes, and which is obtained by co-evaporation of a metal complex comprising a metal central atom and an organic compound, whereby the co-evaporation results in the coordination of the organic compound to the metal complex, whereby the organic compound comprises a system of aromatics and heteroaromatics that are connected to one another via carbon-carbon single bonds, whereby the system comprises more than one heteroaromatic, whereby the organic compound comprises only heteroaromatics whose rings are formed of six atoms and comprise nitrogen as the heteroatom, and whereby the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted by methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl,

**(direct infringement of claim 1 of DE 10 2008 056 391 B4 according to the main request in the nullity proceedings)**

*in particular when*

~~the organic compound comprises a heteroaromatic which is conjugated via a C-C bond with an aromatic~~

**(~~dependent claim 4 of DE 10 2008 056 391 B4~~)**

~~and/or~~

the component is designed as an organic LED (OLED), which additionally comprises an organic emitting layer.

**(dependent claim 9 of DE 10 2008 056 391 B4)**

and/or

- b) organic electronic components that have been manufactured using a method comprising the following method steps: A) providing a substrate, B) applying a first electrode, C) depositing an electron-conducting layer on the substrate, whereby the deposition of the electron-conducting layer is performed by

simultaneous evaporation of a metal complex and an organic compound, D) applying a second electrode,

wherein the organic compound comprises a system of aromatics and heteroaromatics that are connected to one another via carbon-carbon single bonds, wherein the system comprises more than one heteroaromatic, wherein the organic compound comprises only heteroaromatics whose rings are composed of six atoms and comprise nitrogen as the heteroatom, and wherein the system comprises 5 to 8 aromatics and heteroaromatics, each of which may independently be substituted by methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.

to offer, place on the market, or use within the Federal Republic of Germany, or to possess for the aforementioned purposes;

**(direct infringement of claim 135 of DE 10 2008 056 391 B4 according to the main request in the nullity proceedings in the form of a directly obtained product of a process)**

Furthermore, we revise the request under Section B.II. of the amended complaint dated March 7, 2024, taking into account the one-month grace period for the compensation claim, as follows (changes from the original request indicated by strike-through and underlining):

**II.** to declare that the Defendants are obligated:

1. to pay the Plaintiff reasonable compensation for the acts referred to in I.1 committed between ~~April~~ May 1, 2010, and April 30, 2021;
1. to compensate the Plaintiff for all damages suffered by OSRAM OLED GmbH since May 1, 2021, and by the Plaintiff since October 11, 2023, as a result of the acts referred to in I.1 and for all future damages resulting therefrom.

Furthermore, in the event that the Chamber should exceptionally consider itself unable to grant injunctive relief because it deems the claim for injunctive relief to be excluded under Section 139(1) sentence 3 of the German Patent Act (PatG), we shall additionally, in relation to the claim for injunctive relief (Section I.1), make the following subsidiary

**request:**

to order the Defendants to grant the Plaintiff reasonable monetary compensation, the amount of which is to be determined by the Court at its equitable discretion, for the extent to which the claim for injunctive relief is excluded under Section 139(1) sentence 3 PatG.

Further subsidiarily:

to order the Defendants to grant the Plaintiff reasonable monetary compensation.

Since the patent-in-suit is valid at least in the asserted form,

we **oppose** any suspension of the **proceedings**.

We hereby submit the reasoning (including exhibits) for the opposition filed yesterday, September 17, 2024, in the parallel nullity proceedings (Federal Patent Court 2 Ni 24/24) as

– **Exhibit Bundle PS 13** –.

We fully incorporate this into our submissions in the infringement proceedings.

## TABLE OF CONTENTS

|      |                                                                                                                                                |    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------|----|
| A.   | On the Patent-in-Suit .....                                                                                                                    | 13 |
| I.   | On the Teaching of the Patent-in-Suit and the Subject Matter of the Invention in Accordance with the Main Request and its Interpretation ..... | 13 |
| 1.   | Regarding feature 1.d) cc):.....                                                                                                               | 15 |
| 2.   | Regarding feature 1.d) ff):.....                                                                                                               | 17 |
| 3.   | Regarding feature 1.d) dd): .....                                                                                                              | 17 |
| 4.   | Regarding feature 1.d) ee):.....                                                                                                               | 18 |
| 5.   | Regarding features 13.e) to 13.h):.....                                                                                                        | 19 |
| II.  | On the Defendants' Interpretation of the Patent-in-Suit .....                                                                                  | 19 |
| B.   | On the Infringement of the Patent-in-Suit .....                                                                                                | 21 |
| I.   | On the Form of Infringement .....                                                                                                              | 21 |
| II.  | On the Infringement of Claim 1 According to the Main Request.....                                                                              | 22 |
| III. | Infringement of Independent Method Claim 13.....                                                                                               | 32 |
| C.   | No Personal Right of Prior Use .....                                                                                                           | 34 |
| I.   | No Possession of the Invention by the Defendants .....                                                                                         | 34 |
| II.  | No Exercise of Invention Possession at the Priority Date.....                                                                                  | 35 |
| III. | Infringing Version Not Covered by the Scope of the Alleged Right of Prior Use .....                                                            | 39 |
| 1.   | Further Development .....                                                                                                                      | 39 |
| 2.   | Business-Related Nature .....                                                                                                                  | 41 |
| IV.  | In the Alternative: Right of Prior Use Has Expired .....                                                                                       | 42 |
| V.   | Interim Result.....                                                                                                                            | 43 |
| D.   | Stay of Proceedings Not Indicated.....                                                                                                         | 43 |
| I.   | Claims 1 and 13 of the Main Request Are Admissible .....                                                                                       | 43 |
| 1.   | Feature 1.d.cc):.....                                                                                                                          | 43 |
| 2.   | Feature 1.b.dd) .....                                                                                                                          | 44 |
| 3.   | Feature 1.b.ee):.....                                                                                                                          | 44 |
| 4.   | Feature 1.b.ff):.....                                                                                                                          | 45 |
| II.  | Claims 1 and 13 of the Main Request are Novel .....                                                                                            | 45 |
| 1.   | ZP1 lacks at least features 1.d.dd) and 1.d.ff):.....                                                                                          | 46 |
| 2.   | ZP2 lacks at least features 1.d.dd) and 1.d.ff):.....                                                                                          | 46 |
| 3.   | ZP3 at least lacks features 1.d.dd) and 1.d.ff) .....                                                                                          | 48 |
| 4.   | ZP4 at least lacks features 1.d.dd) and 1.d.ff) .....                                                                                          | 48 |
| 5.   | ZP5 at least lacks features 1.d.dd) and 1.d.ff) .....                                                                                          | 48 |

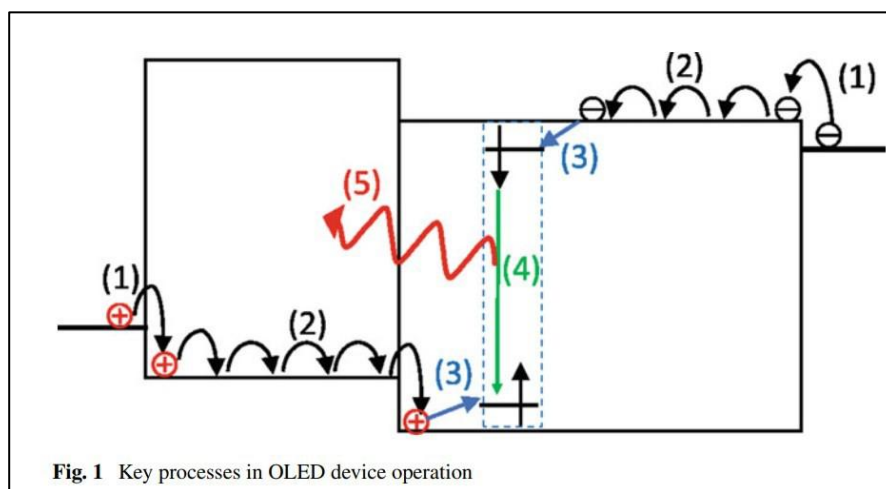
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|----------------------------------------------------------------------------------------------|----|
| 6. ZP6 at least lacks feature 1.d.ff).....                                                   | 49 |
| 7. ZP7 at least lacks features 1.d.dd), 1.d.ee), and 1.d.ff) .....                           | 50 |
| 8. The alleged public prior use at least does not disclose features 1.d.dd) and 1.d.ee)..... | 50 |
| III. Claims 1 and 13 of the Main Request Are Based on an Inventive Step .....                | 51 |
| E. On Active Legal Standing.....                                                             | 54 |
| F. Regarding the Applications .....                                                          | 59 |
| G. On the Statute of Limitations Defense.....                                                | 60 |
| H. Injunction Claim Is Proportionate and Justified .....                                     | 61 |
| I. Legitimate Interest of the Plaintiff .....                                                | 63 |
| II. Alternatives and Complex Product .....                                                   | 64 |
| III. No Disproportionate Economic Impact .....                                               | 64 |
| IV. In the Alternative: Compensation Claim.....                                              | 66 |
| I. On Enforcement Security.....                                                              | 67 |
| J. Summary.....                                                                              | 69 |

## STATEMENT OF GROUNDS

- 1 For reasons of procedural economy, the Plaintiff and patent proprietor is defending the patent-in-suit in the nullity proceedings **to a limited extent**. Within this scope (see the amended claims above), it is asserting the patent in the present infringement proceedings. The subject matter is thereby essentially reduced to its particularly preferred embodiments. These are further distinguished from the prior art documented in publications and from the alleged public prior use. In any case, this subject matter of the invention is novel and inventive: the Plaintiff in the nullity proceedings was unable to mount a substantive attack against the core of the invention as described in detail in the patent-in-suit – particularly reflected in granted claim 5 and forming the basis for the present main request – beyond four meager lines. As will be shown, the unsubstantiated, blanket assertion that the subject matter of claim 5 is so insignificant that it cannot support an inventive step is unconvincing. This claim will not hold before the Federal Patent Court, especially since the experiments described in the patent-in-suit demonstrate the advantageous properties of the embodiments claimed in the main request.
- 2 The only objection that the Defendants tentatively raise against infringement has been refuted: coordination has been proven; the resulting effects that lead to improved electron provision likewise occur. However, this latter proof would not even be necessary if it is demonstrated that the components required by the claim of the protected organic electronic device, as a product, are present.
- 3 The parallel method claim (originally claim 15, now claim 13) is also infringed in the form of the direct process product. Here, no substantial counterargument is even apparent.
- 4 The newly added features are also proven and largely undisputed.
- 5 The following is to be stated regarding the aforementioned **core of the invention**:
- 6 The patent-in-suit generally aims to improve the electron conductivity and thus the device properties of organic electronic components. The improvement is achieved by simultaneously evaporating a metal complex with an organic compound – initially unspecified in more detail in the patent-in-suit. The two substances form an intimate mixture that allows interaction between them and thereby favorable electronic properties (see e.g., para. [0007]). The subject matter according to the now pending main request specifies an additional important sub-aspect for achieving good electronic properties, which is already suggested in granted claims 4 and 5 and is further specified in the present

main request, namely the selection of an organic compound that is particularly advantageous for this purpose. Such a selection of the organic compound is by no means arbitrary; rather, large parts of the patent-in-suit are specifically devoted to this subject.

- 7 For better understanding, the technical background of electron conduction will be explained first: The electron-conducting layer(s) according to the patent-in-suit consist of many individual organic molecules. One can visualize the electron conduction through such a layer as follows: the electron must hop from molecule to molecule in order to cross the layer. In the textbook *Advanced Display Technology*, 1st ed., 2021, this is abstractly illustrated in Fig. 1 on page 3:



An electron ( $\ominus$ ) enters the electron-conducting layer from the cathode in step (1) and then hops from molecule to molecule through the layer in step (2), the so-called “hopping process.”

- 8 The aforementioned textbook *Advanced Display Technology* is submitted in excerpts as

– Exhibit PS 14 –.

- 9 Such hopping occurs as the electron seeks out the energetically most favorable path through the layer. However, there is no fixed predetermined favorable path that an electron could follow, because the individual molecules are present in the layer in a more or less disordered arrangement and, on the molecular level, are constantly in motion (the so-called Brownian molecular motion). Brownian molecular motion causes the molecules in the layer to be mobile, to vibrate, rotate, and twist. The position and orientation of the molecules is therefore described as randomized. The randomization means that each electron must find its own energetically optimal path from its exit point at the cathode through the layer. Even an electron that exits the cathode immediately afterward at the

same point must already find a different path, because the energetically optimal paths are subject to constant change due to Brownian motion.

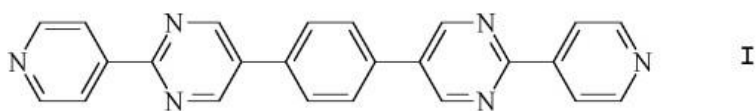
- 10 The process of electron hopping from molecule to molecule is energetically demanding. It requires that the molecular orbitals of neighboring molecules overlap. Molecular orbitals can be understood as electron clouds that bind the individual atoms of a molecule together and surround the molecule externally. Only if the electron clouds of two neighboring molecules come particularly close and penetrate one another (i.e., overlap) can an electron jump to the neighboring molecule. In the aforementioned textbook *Advanced Display Technology*, the processes described in paragraphs 7 to 9 are summarized on page 4 as follows:

“(2) Charge transport: Electrons and holes move through their respective transport layers under the influence of the applied electric field. In contrast to inorganic devices, these charge carriers are not free carriers, but rather oxidized or reduced molecules. The localized nature of these charged states requires that the charges must hop from the molecular orbitals of one molecule to the next via an intermolecular electron transfer. The spatial distribution in electron density of molecular orbitals, the barriers between potential wells of neighboring molecules, and the random orientation of the molecules in the amorphous film all slow this hopping process compared to charge transport in a crystalline inorganic solid [15]”

“(2) Charge transport: Electrons and holes move through their respective transport layers under the influence of the applied electric field. In contrast to inorganic devices, these charge carriers are not free carriers, but rather oxidized or reduced molecules. The localized nature of these charged states requires that the charges must hop from the molecular orbitals of one molecule to the next via an intermolecular electron transfer. The spatial distribution in electron density of molecular orbitals, the barriers between potential wells of neighboring molecules, and the random orientation of the molecules in the amorphous film all slow this hopping process compared to charge transport in a crystalline inorganic solid [15]”

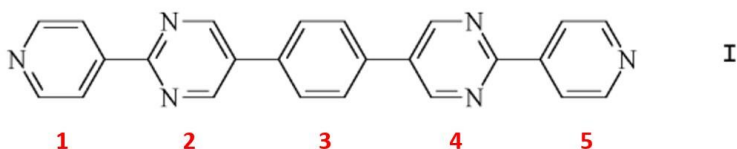
- 11 Against this background, the patent-in-suit centrally addresses the selection of organic compounds which, in combination with the simultaneously evaporated metal complex, facilitate the transport of electrons through the electron transport layer. According to the main request, the organic compound exhibits six properties as disclosed in the patent-in-suit for the underlying embodiments:

- a) It comprises a system of aromatics and heteroaromatics, each connected by a carbon-carbon single bond. Such an arrangement is shown in the formula of granted claim 5. A concrete example is compound (I) from the patent-in-suit:



Systems of aromatics and heteroaromatics connected by carbon–carbon single bonds are conjugated systems, i.e., systems with delocalized electron systems, which enable the organic compound to accept and transport negative charges very effectively, since such additional charge can be distributed over several atoms (see para. [0032]). An electron that hops onto such a compound can therefore be conducted particularly easily within the molecule.

- b) The system must further comprise 5 to 8 of such connected aromatics and heteroaromatics. This is already present in the formula of granted claim 5, although the latter still permits a system of 2 to 8 connected aromatics and heteroaromatics (as  $n=2-8$ ). In contrast, the main request restricts this to a minimum of 5 aromatics and heteroaromatics, as is the case in compound (I) of the patent-in-suit:



Due to the requirement of at least 5 connected aromatics and heteroaromatics, the conjugated system is relatively large. An electron that hops onto such a large compound can be conducted particularly far within the layer before it has to hop to the next molecule. The number of energetically problematic hopping events between adjacent molecules is therefore reduced. The patent-in-suit points out the advantages of large conjugated and delocalized electron systems, e.g., in paras. [0030] and [0032].

- c) The organic compound includes only heteroaromatics whose rings are composed of six atoms. As described in para. [0023] of the patent-in-suit, such six-membered heteroaromatics (in comparison with, for example, five-membered heteroaromatics) are best able to form a delocalized electron system. An electron that hops onto such a compound can therefore be conducted particularly efficiently within the molecule.
- d) Due to the sequence of aromatics and heteroaromatics connected by carbon–carbon single bonds, the organic molecule is also relatively flexible and can therefore adapt particularly well to local spatial requirements in order to form energetically favorable interactions with its neighboring molecules. This is described in para. [0020] of the patent-in-suit, which states that aromatics and heteroaromatics linked by carbon–carbon single bonds are not so sterically demanding and voluminous and can therefore more easily coordinate to a metal complex. In view of the Brownian molecular motion

explained in paras. 9 and 10, which leads to a constantly changing environment of the molecules, the flexibility provided by the carbon–carbon single bonds increases the likelihood that the organic compound can orient itself into a spatial arrangement favorable for the electron hopping process.

- e) The system includes more than one heteroaromatic. As described in para. [0018] of the patent-in-suit, this allows the organic compound to coordinate simultaneously to multiple metal complexes. The organic compound can therefore interconnect adjacent metal complexes particularly easily and facilitates or promotes, as described in paras. [0033] and [0034], the formation of chain and network structures within the electron-conducting layer. Such structures can support the electron hopping processes.
  - f) The organic compound comprises only heteroaromatics that include nitrogen as a heteroatom. As described, for example, in para. [0018] of the patent-in-suit, nitrogen (element symbol: N) is a preferred heteroatom, since nitrogen, due to its lone pair of electrons, has very good coordination properties with respect to metal complexes. It is therefore particularly easy to form a coordinative bond to adjacent metal complex(es).
- 12 These six properties prove to be particularly favorable in the patented mixed layers with a metal complex. As can be seen, the organic compound according to the new main request exhibits all the advantages that the patent-in-suit proposes for especially favorable organic compounds – simultaneously and synergistically.
- 13 In summary, the main request specifies an organic compound that the patent-in-suit has identified and declared to be advantageous for use in a mixed layer with a metal complex to improve electronic properties.
- 14 These favorable organic compounds according to the main request have a positive effect on the device properties of the components equipped with the electron transport layers according to the invention. For example, the experiments in Figs. 6 through 8 of the patent-in-suit show the electrical and optoelectronic properties of devices that are improved by means of a mixture of metal complexes and the organic compounds according to the main

request (namely the above-shown compounds I and II), as compared to pure layers of the respective organic compounds (see para. [0076], emphasis added):

“The measurement curves shown in Figs. 5 to 8 each clearly demonstrate that the presence of the metal complex, which was co-evaporated with the organic compound to form an electron-conducting layer, has a positive influence on the measured electrical and optoelectronic parameters. In the corresponding organic electronic devices, a higher current density, higher luminance, better efficiency, and longer service life could be achieved by co-evaporating the metal complex with the organic compound.”

- 15 The cited prior art does indeed deal extensively with the simultaneous evaporation of a metal complex and an organic material. However, the organic compounds according to the main request are absent from the cited references, as is any teaching that addresses the specific selection of the organic compound both in terms of its interaction with a metal complex and in terms of optimizing electron conduction via the electron hopping process. Given the enormous number of proposed compounds in the total of seven prior art documents, this is already a clear indication that the subject matter of the main request is not only novel but also based on an inventive step.
- 16 The complaint is entirely well-founded. The challenged embodiment infringes at least claims 1, 7, and 13 according to the main request in the nullity proceedings.
- 17 Moreover, the Plaintiff has legal standing with respect to all claims asserted in the complaint. The patent-in-suit, including all past and future claims, was validly assigned to the Plaintiff. Claims for compensation and damages are not time-barred. Finally, the claim for injunctive relief is also not excluded on grounds of disproportionality.
- 18 In detail:

## A. On the Patent-in-Suit

### I. On the Teaching of the Patent-in-Suit and the Subject Matter of the Invention in Accordance with the Main Request and its Interpretation

- 19 As stated at the outset, the patent-in-suit is being defended in limited scope in the nullity proceedings and is being asserted in a correspondingly adapted scope in the present infringement proceedings. The patent-in-suit has been restricted to its particularly preferred embodiments.
- 20 As acknowledged by the Defendant in para. 23 of the SoD, the object of the patent-in-suit is to provide an electron-conducting layer in an organic electronic device that has high electron conductivity (cf. also para. [0004]). This object is achieved in that the electron-conducting layer is obtained by co-evaporation of a metal complex with an organic compound (cf. para. [0005]). Through the co-evaporation of the metal complex with an organic compound, these two compounds interact with each other in the gas phase or upon encountering the substrate surface (cf. para. [0007]). In other words, the two compounds are brought into an especially intimate mixing on the molecular level by means of co-evaporation. Through this especially intimate contact, the metal complex and the organic compound are able to enter into a coordinative bond within the meaning of feature 1.d)bb)(1); this enables favorable electronic properties (cf. para. [0007].)
- 21 The now-applicable main request specifies an additional important aspect for achieving good electronic properties – namely, the selection of a particularly advantageous organic compound for that purpose. Claim 1 of the main request can be structured as follows, with the features marked in green (cc) to ff)) being additions to granted claim 1:

|          |                                                                                                                             |
|----------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | Organic electronic component comprising                                                                                     |
| a)       | a substrate,                                                                                                                |
| b)       | a first electrode,                                                                                                          |
| c)       | a second electrode,                                                                                                         |
| d)       | an electron-conducting layer,                                                                                               |
| aa)      | which is arranged such that it is electrically conductively connected to at least one of the electrodes,                    |
| bb)      | which is obtained by co-evaporation of a metal complex that includes a metal central atom, and an organic compound, whereby |
| (1)      | through the co-evaporation the organic compound is coordinated to the metal complex.                                        |

|      |                                                                                                                                                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cc)  | wherein the organic compound comprises a system of aromatics and heteroaromatics that are each connected to one another by a carbon–carbon single bond,                                                     |
| dd)  | wherein the system comprises more than one heteroaromatic,                                                                                                                                                  |
| ee)) | wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms and contain nitrogen as the heteroatom, and                                                                 |
| ff)  | wherein the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted with methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl. |

The previous dependent claim 9 is being pursued further as dependent claim 7:

|     |                                                                        |
|-----|------------------------------------------------------------------------|
| 7   | Organic electronic component according to one of the preceding claims, |
| a)  | designed as an organic LED (OLED),                                     |
| aa) | which additionally comprises an organic emitting layer.                |

- 22 The previously asserted independent method claim 15 is likewise being pursued in restricted form as claim 13, and the organic compound is specified analogously to claim 1. It independently protects a method for producing an organic electronic device. Claim 13 of the main request can be structured as follows, with the features marked in green (e) to h)) being additions to granted claim 15:

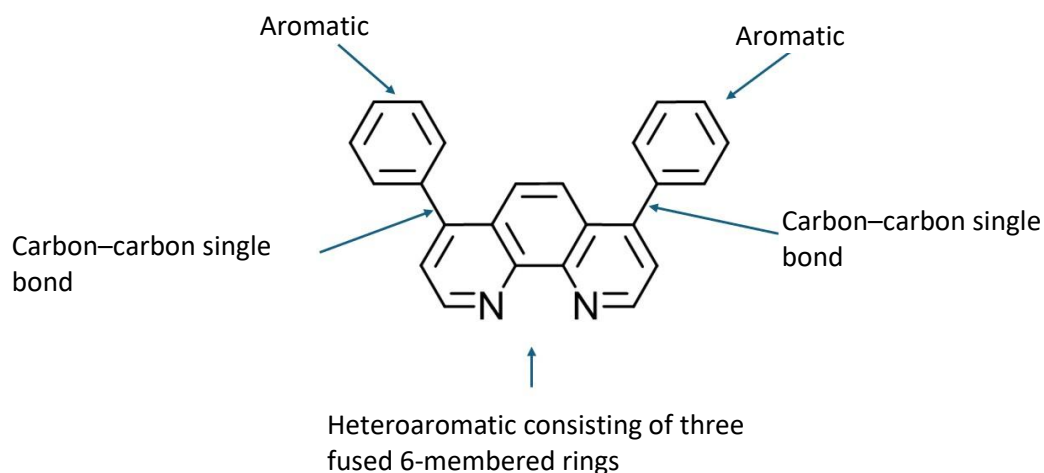
|     |                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13  | Method for producing an organic electronic component, comprising the following method steps:                                                                                                                |
| a)  | A) Providing a substrate,                                                                                                                                                                                   |
| b)  | B) Applying a first electrode,                                                                                                                                                                              |
| c)  | C) Depositing an electron-conducting layer on the substrate,                                                                                                                                                |
| aa) | wherein the deposition of the electron-conducting layer takes place by simultaneous evaporation of a metal complex and an organic compound,                                                                 |
| d)  | D) Applying a second electrode.                                                                                                                                                                             |
| e)  | wherein the organic compound comprises a system of aromatics and heteroaromatics that are each connected to one another by a carbon–carbon single bond,                                                     |
| f)  | wherein the system comprises more than one heteroaromatic,                                                                                                                                                  |
| g)  | wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms and contain nitrogen as the heteroatom, and                                                                 |
| h)  | wherein the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted with methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl. |

- 23 According to the main request, the organic compound has been specified with six properties, which are summarized in features cc) to ff) and e) to h), respectively.

## 1. Regarding feature 1.d) cc):

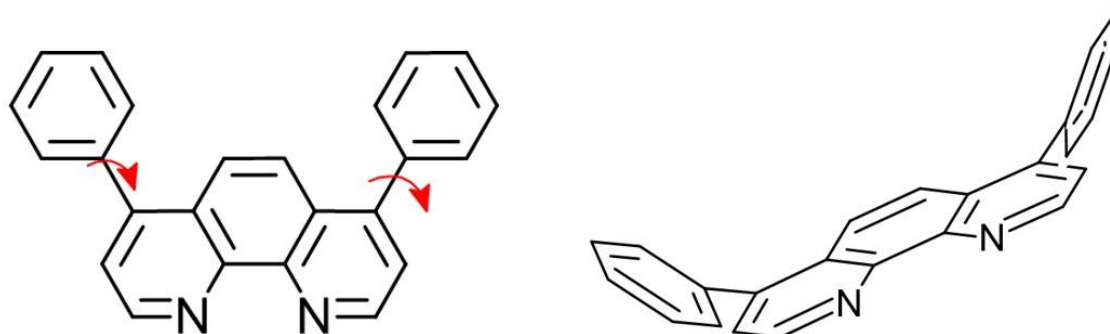
*wherein the organic compound comprises a system of aromatics and heteroaromatics that are each connected to one another by a carbon–carbon single bond*

- 24 This feature specifies that the organic compound now comprises a system of aromatics and heteroaromatics, each of which is connected to the others by a carbon–carbon single bond.
- 25 For interpretation of the terms “aromatic,” “heteroaromatic,” and “single bond,” we refer to the statement of claim (“SoC”), paras. 57 and 58. A “carbon–carbon single bond” is a single bond between two carbon atoms.
- 26 If a carbon–carbon single bond connects two (hetero)aromatics, the two connected (hetero)aromatics are not fused (cf. para. [0020] of the patent-in-suit). This means that the two (hetero)aromatics are not fused into a single larger (hetero)aromatic but remain largely separate and are connected only via a carbon–carbon single bond. For better understanding, this is illustrated using the unclaimed compound BPhen, which is disclosed in most prior art documents in the nullity action. BPhen consists of a heteroaromatic that is connected via carbon–carbon single bonds to two further aromatics. The heteroaromatic consists of three aromatic six-membered rings that are fused together. The heteroaromatic contains two heteroatoms, specifically two nitrogens (element symbol N):



- 27 Because the (hetero)aromatics are connected via carbon–carbon single bonds, they are rotationally flexible with respect to one another – that is, the (hetero)aromatics can rotate around the “axis of rotation” of the carbon–carbon single bond. The (hetero)aromatics

themselves, however, are rigid and planar. A perspective representation of BPhen, showing the rigid planar heteroaromatic and the two aromatics in a slightly twisted configuration, is shown below right:



- 28 Due to the fused heteroaromatic, BPhen is relatively rigid and inflexible despite its size. In contrast, the 5 to 8 (hetero)aromatics referred to in feature 1.d) ff), as defined in feature 1.d) cc), are all (“each”) connected by rotatable carbon–carbon single bonds. The organic compound is therefore relatively flexible for its size and can therefore more easily adapt to local spatial requirements to form energetically favorable interactions with its neighboring molecules. In para. [0020], it is stated in this regard that (hetero)aromatics linked by carbon–carbon single bonds are not as sterically demanding and bulky and can therefore coordinate more easily to a metal complex:

“[0020] A C–C bond is understood to mean a carbon–carbon single bond, i.e., the heteroaromatic and the aromatic are not fused. Such a system, in which the heteroaromatic is linked to further aromatics via C–C single bonds, has the advantage over fused systems that it is not as sterically demanding and bulky and can thus more easily coordinate to a metal complex, or more effectively coordinate to multiple metal complexes simultaneously. The heteroatom in the heteroaromatic is preferably N, O, or S, with N being particularly preferred.”

- 29 In view of the Brownian molecular motion explained in paras. 7 to 10, which leads to a constantly changing environment of the molecules, the flexibility provided by the carbon–carbon single bonds increases the likelihood that the organic compound can orient into a spatial arrangement favorable for the electron hopping process.
- 30 The systems defined by this feature (i.e., systems of aromatics and heteroaromatics connected to one another by carbon–carbon single bonds) are conjugated systems. These are systems with delocalized electron systems that allow the organic compound to accept

and transport negative charge very effectively, as the additional charge can be distributed over multiple atoms. This is illustrated, for example, in para. [0032]:

“Furthermore, these compounds have large delocalized electron systems, such as fused aromatics or aromatics that are electronically conjugated with one another. These delocalized electron systems allow the compounds to effectively accept and transport additional negative charge, as this additional charge can easily be distributed over several atoms in the molecule. As a result, a coordinated metal complex can effectively transfer negative charge to the organic compound coordinated to it. Furthermore, electrons from the organic compounds I, II, XIV to XXIII can also be readily passed on among the organic compounds themselves. This is also crucial for good electron conductivity in the electron-conducting layer.”

- 31 Organic compounds configured according to this feature are therefore advantageous for enabling an electron that has hopped onto such a compound to be readily further transported within the molecule.

This feature is directly linked to feature 1.d) ff).

## **2. Regarding feature 1.d) ff):**

*wherein the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted with methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.*

- 32 This feature specifies the organic compound such that it now comprises a system of 5 to 8 (as defined in feature 1.d) cc)) connected aromatics and heteroaromatics. The restriction to at least five connected aromatics and heteroaromatics makes the conjugated system relatively large or long. An electron that hops onto such a large compound can be conducted particularly far within the layer before it has to hop to the next molecule. The number of energetically problematic hopping events between adjacent molecules is therefore reduced. The patent-in-suit points out the advantages of large conjugated and delocalized electron systems, e.g., in paras. [0030] and [0032].

## **3. Regarding feature 1.d) dd):**

*wherein the system comprises more than one heteroaromatic*

- 33 This feature specifies the organic compound such that it now comprises more than one heteroaromatic. As described in para. [0018], this enables the organic compound to coordinate to multiple metal complexes simultaneously:

“[0018] The organic compound preferably comprises more than one heteroaromatic. This enables the organic compound to coordinate to multiple metal complexes simultaneously. A heteroaromatic has the advantage over an aromatic that it can coordinate to a metal complex not only via the aromatic system ( $\pi$ -electrons), as described in the publication by Cotton in Organometallics cited above, but also directly via the heteroatom. The greater the number of heteroaromatics in the organic compound, the greater the number of potential coordination sites for a metal complex. Here, N is a preferred heteroatom. Due to its typically unshared electron pair, N has a very good coordination capacity with respect to metal complexes.”

- 34 The organic compound can therefore interconnect adjacent metal complexes particularly easily and facilitates or promotes, as described in paras. [0033] and [0034], the formation of chain and network structures within the electron-conducting layer. Such structures can support the electron hopping processes.

#### 4. Regarding feature 1.d) ee):

*wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms and contain nitrogen as the heteroatom*

- 35 This feature specifies the organic compound such that it comprises only heteroaromatics whose rings are formed of six atoms. As described in para. [0023] of the patent-in-suit, such six-membered heteroaromatics (in comparison with, for example, five-membered heteroaromatics) are best able to form a delocalized electron system:

[0023] In another embodiment of the organic electronic device, the organic compound comprises only heteroaromatics whose rings are formed of six atoms. These heteroaromatics can most effectively form a delocalized  $\pi$ -electron system in conjugation with other heteroaromatics or aromatics, which is well-suited to accept additional charge. The heteroatom in the heteroaromatic is preferably N, O, or S, with N being particularly preferred.

- 36 An electron that hops onto such a compound can therefore be conducted particularly efficiently within the molecule.
- 37 This feature also further specifies the organic compound such that it comprises only heteroaromatics that contain nitrogen as the heteroatom. As described, for example, in para. [0018], nitrogen (element symbol: N) is a preferred heteroatom since nitrogen, due to its lone pair of electrons, has very good coordination properties with respect to metal complexes. It states:

“[0018] The organic compound preferably comprises more than one heteroaromatic. This enables the organic compound to coordinate to multiple metal complexes simultaneously. A heteroaromatic has the advantage over an aromatic that it can coordinate to a metal complex not only via the aromatic system ( $\pi$ -electrons), as described in the publication by Cotton in Organometallics cited above, but also directly via the heteroatom. The greater the number of heteroaromatics in the organic compound, the greater the number of potential coordination sites for a metal complex. Here, N is a preferred heteroatom. Due to its typically unshared electron pair, N has a very good coordination capacity with respect to metal complexes.”

This part of the feature therefore makes it particularly easy to form a coordinative bond to adjacent metal complex(es).

#### **5. Regarding features 13.e) to 13.h):**

- 38 Since these features are identical in wording and content to features 1.d) cc) to ff), we refer in this regard to the preceding discussion.
- 39 In summary, the main request specifies an organic compound that the patent-in-suit has identified as advantageous for use in a mixed layer with a metal complex to improve electronic properties.

### **II. On the Defendants’ Interpretation of the Patent-in-Suit**

- 40 Feature 1.d)bb)(1) requires that the organic compound be coordinated to the metal complex by means of co-evaporation. As stated in para. 53 of the SoC, an organic compound is coordinated to the metal complex when it binds to the metal complex via a coordinate bond. The feature thus defines a structural characteristic – namely a coordinate bond, i.e., a chemical interaction between two molecules.
- 41 In paras. 31 through 34 of the SoD, the Defendants attempt to construe this structural feature in a restrictive manner, arguing that in addition to the coordinate bond expressly required by the feature between the organic compound and the metal complex, the technical effect associated with this feature described in the patent-in-suit (i.e., the ability to transfer electrons and the resulting increase in conductivity) must also be proven. Specifically, the Defendant states in para. 34 of the SoD:

“By the same token, it must be determined on the infringement side – i.e. in the contested device – whether the required coordination of the organic compound to the

metal complex is present and whether, as a result, the described provision of additional electrons to increase conductivity takes place.”

- 42 This must be opposed: Where a structural feature is present, it is generally not necessary to demonstrate that the technical benefits associated with that feature also occur in the contested embodiment. This also applies in the present case, particularly because para. [0007] makes clear that the referenced electron transfer and the improved electron conductivity are merely explanatory remarks describing the benefits that may be achieved through coordination of the compounds. (Emphasis added by us):

“[0007] Through the co-evaporation of the metal complex with an organic compound, these two compounds interact with each other in the gas phase or upon encountering the substrate surface. This interaction leads to coordination between the compounds. The compounds are deposited in the coordinated state, resulting in the formation of a layer exhibiting local order. Local order is to be understood to mean that while the entire layer is not crystalline as such, the organic compounds are arranged in a specific pattern around the metal complex in its immediate environment, depending on the selected metal complex and the organic compound. The entire layer as such, however, is amorphous and thus exhibits no long-range order. Through the coordination of the organic compound to the metal complex, and the associated orbital overlap, additional electrons can be transferred from the metal to the ligand via a metal-to-ligand electron transfer (metal–ligand charge transfer complex). These electrons can be available for electron transport in the organic electronic component. The increase in ‘free’ electrons significantly improves the electron conductivity in the component. This leads to an increase in the efficiency and service life of the organic electronic component.”

- 43 It is clearly apparent that these are supplementary technical explanations describing which effects can result from the coordination. On this basis, however, feature 1.d)bb)(1) cannot be interpreted in a restrictive manner.
- 44 It is also telling that while the Defendants attempt to impose additional electron-transport-related conditions onto the feature “coordination,” they notably do not claim or even attempt to prove that the metal complex used in the contested embodiment – (8-quinolinolato)lithium (hereinafter abbreviated as “**LiQ**”) – does not improve electron transport in the electron-conducting layer. Their expert, Professor Straßner, likewise does not make this claim. In fact, LiQ is added to the electron-conducting layer today precisely for this purpose, as described in the 2021 textbook *Advanced Display Technology*. We refer in this regard to pages 11 and 12 of Exhibit PS 14, which explain that in the production of modern electron-conducting layers (abbreviated as ETL = “Electron Transport Layer”), such layers are doped with organolithium complexes such as LiQ (also abbreviated as Liq)

as a performance-enhancing additive, in order to improve electron mobility within the electron-conducting layer:

“More recently, several designs of electron-deficient molecules with large aromatic planes such as 2,4,6-tris(biphenyl-3-yl)-1,3,5-triazine (T2T) [...] have demonstrated very high mobilities and improved device performance. In addition to selecting materials with high inherent mobilities, the ETL can be doped to further improve the mobility within the layer. One common class of material for this are organolithium complexes such as Liq” (Herv. diesseits)

In German:

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- 45 We additionally refer to our statements in the complaint at paras. 97 et seq., where we also cited literature describing LiQ as an additive that is introduced into the electron-conducting layer to increase its conductivity.
- 46 The Defendant is transparently attempting, by this strategy, to further increase the evidentiary burden – already considerable due to the complex analytics involved. This attempt is without merit in patent law.

## **B. On the Infringement of the Patent-in-Suit**

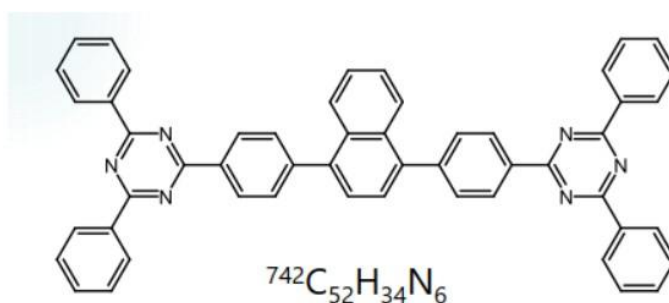
- 47 Claim 1 of the new main request is also infringed.

### **I. On the Form of Infringement**

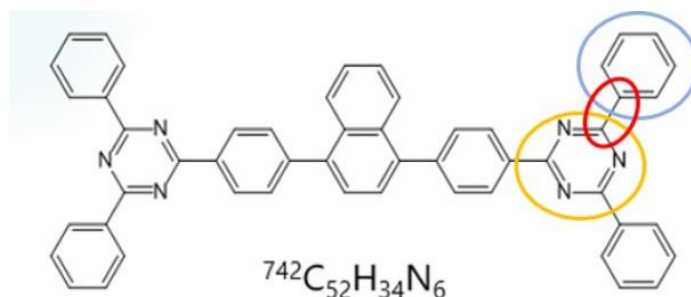
- 48 The Defendant states in para. 43 of the SoD that the Plaintiff has failed to plausibly assert which other models of the Samsung Galaxy S series infringe the patent-in-suit. This objection is unfounded. Paragraphs 61 et seq. of the complaint explain that the Defendant advertises and distributes smartphones of the Samsung Galaxy S series with a specific OLED display in Germany. The complaint thus concerns all models of the Defendant’s Samsung Galaxy S series with an OLED display that is substantially identical with respect to the features of the asserted claims of the patent-in-suit. No further substantiation is required in this regard. Rather, it is the Defendant who would need to assert that the OLED displays of specific models are not substantially identical with respect to the features of the asserted claims.

## II. On the Infringement of Claim 1 According to the Main Request

- 49 The Defendant's objections regarding the features of the granted claim 1 are unconvincing. Before addressing them in detail, we first present how the *new* features 1.d) cc) through 1.d) ff) are fulfilled.
- 50 The Defendant does not dispute that the contested embodiments contain compound 742 as a component of the electron-transporting layer. The compound designated as "742" in the statement of claim has the following chemical structural formula; see SoC, para. 92:



- 51 The statement of complaint already includes statements regarding the nature of the compound in connection with the realization of claim 4 (see para. 111), which were not disputed by the Defendant. These are summarized again below:
- 52 Compound 742 contains several aromatics in the form of six-membered rings. One of these aromatics is circled in blue below. In addition, the molecule has two heteroaromatic groups, again in the form of six-membered rings with three incorporated nitrogen atoms (N). One of these heteroaromatics is circled in yellow below. Finally, the aromatic and heteroaromatic rings are conjugated via a carbon-carbon bond (C-C bond) (i.e., connected in such a way that a sequence of alternating single and double bonds extends across the aromatic and heteroaromatic systems). The C-C bond between the aromatic (blue) and heteroaromatic (yellow) rings is circled in red:



- 53 In summary, with regard to the new features of the main request, it is clear that at least the underlined features or sub-features are undisputedly fulfilled:

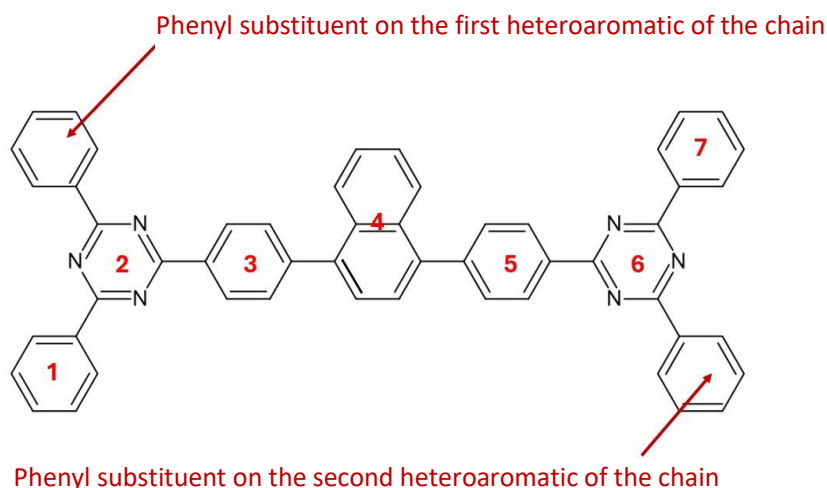
|     |                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cc) | <u>wherein the organic compound comprises a system of aromatics and heteroaromatics that are each connected to one another by a carbon–carbon single bond,</u>                                              |
| dd) | <u>wherein the system comprises more than one heteroaromatic,</u>                                                                                                                                           |
| ee) | <u>wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms and contain nitrogen as the heteroatom</u>                                                               |
| ff) | wherein the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted with methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl. |

- 54 Additionally, the following:

**Regarding feature 1.d) cc):** Since all aromatics and heteroaromatics of compound 742 are connected via a carbon–carbon single bond (see the red-circled bond in the figure above, which is placed between all aromatics and heteroaromatics), the aromatics and heteroaromatics are therefore “*each*” connected via a carbon–carbon single bond.

**Regarding feature 1.d) ee):** Compound 742 contains exclusively heteroaromatics that are formed from six atoms and include nitrogen (“N”) as the heteroatom. Accordingly, it consists “*only*” of heteroaromatics whose rings are formed from six atoms and include nitrogen as the heteroatom.

**Regarding feature 1.d) ff):** Compound 742 comprises a chain of 7 aromatics and heteroaromatics connected to each other via carbon–carbon single bonds. This chain constitutes a system of aromatics and heteroaromatics within the meaning of features 1.d) cc) and 1.d) dd). The two heteroaromatics are each substituted with a phenyl group, which is a feature-compliant optional substituent of the aromatics and heteroaromatics. For better illustration, this is again presented in summary below:



55 The individual aromatics and heteroaromatics of the system are numbered 1 to 7, and the optional phenyl substituents on the heteroaromatics are indicated with arrows.

56 Accordingly, all features newly added to claim 1 in the main request are fulfilled.

57 The Defendant also raised extensive objections regarding the alleged non-fulfillment of feature 1.d) bb) (1) and submitted an expert opinion from Prof. Straßner in that regard. The arguments presented are unconvincing, particularly because they rely on conclusions by Prof. Straßner that are incorrect. This is compellingly demonstrated in a counter-opinion by Prof. Schanze, a recognized expert in the field of OLED manufacturing with over 30 years of research experience in this area. Prof. Schanze concludes that the purely theoretical considerations by Prof. Straßner contain serious errors. Therefore, the Defendant's argumentation, which is based on these considerations, is untenable. In contrast, Prof. Schanze's own experimental studies support the assertion that a coordination between these compounds occurs in the resulting layer when LiQ and compound 742 are co-evaporated.

58 This will be elaborated upon below with reference to the counter-opinion by Prof. Schanze, which is submitted with exhibits as

– Exhibit Bundle PS 15 –

and in German translation (without exhibits) as

– Exhibit PS 15a –.

59 The Defendants initially stated (para. 46 SoD) that the Plaintiff had not plausibly demonstrated that feature 1.d) bb) (1) (which requires coordination between the metal complex and the organic compound) is realized in the contested embodiments. To this end,

they reduce the Plaintiff's submission in para. 108 SoC to the assertion that coordination occurs automatically upon co-evaporation of the two substances. This is an impermissible oversimplification that requires clarification. The complaint explains that para. [0034] of the patent-in-suit states that coordination during co-evaporation occurs without any further technical measures, provided the compounds are suitably selected. We further stated that lithium complexes are such suitable compounds, with reference to paras. 50–55 SoC, which discuss the good coordinating ability of lithium complexes with the free electron pairs of nitrogen atoms, using the example of LiI(TACN), which is also described in paragraph [0018] of the patent-in-suit. Regarding the organic compound, we pointed out that compound 742 is very similar to the preferred compounds of the patent-in-suit and therefore should also be assumed to be suitable for forming coordination. Accordingly, the combination of LiQ and compound 742 meets the criteria of para. [0034] of the patent-in-suit for forming a coordinate bond during co-evaporation.

60 This assessment is not altered by the Defendant's arguments:

61 First, it should be noted that the Defendants have not submitted any experimental evidence or similar proof demonstrating that compound 742 cannot form a coordination with LiQ during co-evaporation, i.e., that it is incapable of forming coordination with LiQ.

62 Nor do the Defendants assert that they undertake specific technical measures to prevent the coordination between compound 742 and LiQ.

63 Finally, the Defendants do not dispute that compound 742 is very similar to the preferred compounds of the patent-in-suit. Thus, like the preferred compounds of the patent-in-suit, compound 742 must be considered generally capable of forming coordinate bonds.

64 In summary: Only if LiQ is inherently incapable of forming a coordinate bond could feature 1.d) bb) (1) not be fulfilled.

65 This is precisely where the Defendants' argument and that of their expert begin. The Defendant argues in paras. 48–50 of the SoD, citing its expert opinion, that LiQ exists as an extremely stable hexamer, i.e., an aggregate of six LiQ units, and that due to the stability of this hexamer, it is not a good complexing agent. The coordination of an organic compound to LiQ could only occur if, despite the high energy input required to break the LiQ hexamer into individual LiQ units, the coordination with the organic compound still yielded a net

positive energy gain. This, they argue, is unlikely, and therefore coordination does not occur.

66 We had this line of argument reviewed in our counter-opinion by Prof. Schanze. Prof. Schanze addressed it both theoretically and with his own experiments. The result was unequivocal. We quote from paras. 10–14 of the opinion:

„10. While I respect Prof. Straßner’s views, I must respectfully disagree with his conclusions. I note and have to criticize that Prof. Straßner reached his conclusions without supporting them with first-hand experimental data or demonstrating that his reasoning is based on views accepted in the scientific community.

11. To give one example, Prof. Straßner concluded in paragraph 3(b) of his opinion that LiQ is commonly present as LiQ hexamers which are “*exceptionally stable and a coordinative interaction of the lithium cations with  $^{742}\text{C}_{52}\text{H}_{34}\text{N}_6$  is practically impossible for energetic reasons.*” However, this conclusion is only based on his own assumptions and theories without adequately documenting that these assumptions and theories are scientifically sound and have precedence, for instance by pointing to appropriate statements in peer-reviewed scientific publications. As the former Editor-in-Chief of a very well-respected scientific journal, I have to say that the quality of Prof. Straßner’s opinion is disappointingly low and its results are certainly not fit for publication.

12. Already for this reason, Prof. Straßner’s conclusion that LiQ and compound 742 will not coordinate is not persuasive. However, there are further reasons: His unproven theories ignore a fundamental law of nature, namely the Second Law of Thermodynamics. The scientific literature frequently reports coordination of LiQ with pyridinic nitrogen which is the functional group in compound 742 capable of coordinating with LiQ. Finally, my own experiments demonstrate that Prof. Straßner’s main conclusion, namely that compound 742 will not coordinate with LiQ during co-evaporation, is unfounded.

13. In overall summary, I would strongly expect the co-evaporation of LiQ with compound 742 to result in the coordination of these compounds in an electron transporting layer and I would further strongly expect that this coordination improves the electron conductivity of compound 742 when used as an ETL material.“

In German:

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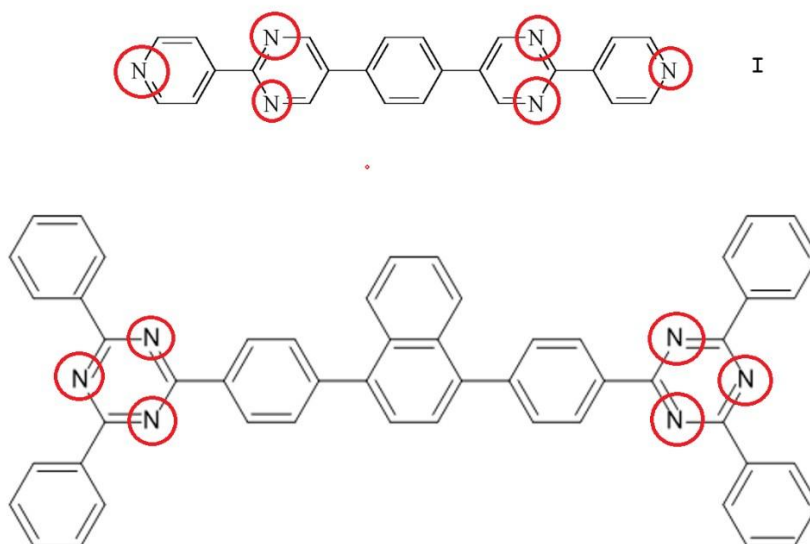
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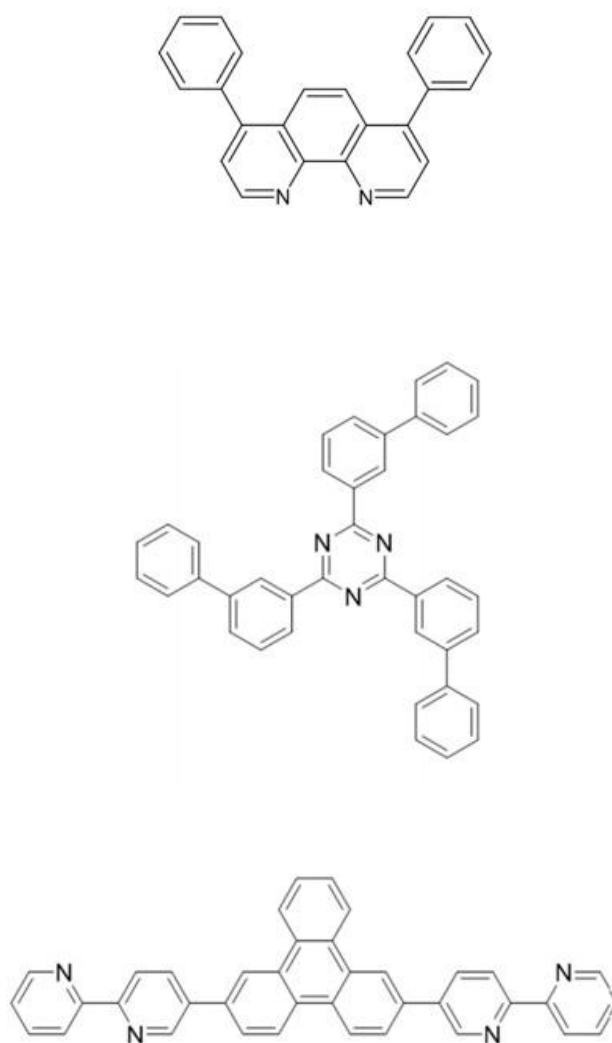
67 Professor Schanze criticizes Professor Straßner's theoretical foundation as inadequate, as it fails to take into account key aspects and laws of nature. The deficiencies are extensive and serious and are set out in detail in Professor Schanze's expert opinion in paras. 15 to 37. For the sake of readability, only the most essential points are summarized below:

- Professor Straßner fails to support many of his assumptions and theses with scientific publications. Where he does cite literature in his footnotes, the cited literature often **does not support** the claims made (paras. 19–22).
- The alleged stability of the LiQ hexamer is based on a theoretical DFT calculation of the binding energy of the hexamer, as cited in the literature referenced in his footnote [6]. However, this calculation was conducted under the assumption of a temperature of **0 Kelvin** and therefore does not account for the high temperatures during co-evaporation ( $> 285^{\circ}\text{C}$ ), nor for the influence of entropy (a measure of disorder and central to the second law of thermodynamics). The failure to take into account temperature and entropy (within the framework of the Gibbs equation and Le Chatelier's principle) are serious errors. If these principles and the high temperature during co-evaporation are taken into account, it is highly likely that dissociation of the LiQ hexamer occurs during co-evaporation (paras. 23–34).

- 68 The alleged high energy requirement for breaking up the LiQ hexamer is therefore not necessary during co-evaporation of LiQ and compound 742, since the high temperatures involved and entropy favor dissociation of the LiQ hexamer. To better illustrate the role of temperature: the Defendant bases its argument on a DFT calculation carried out at 0 Kelvin – that is, -273°C. In reality, however, co-evaporation takes place at >285°C. This represents a temperature difference of 558°C (!), which – like the influence of entropy – the Defendant fails to consider. The supposedly high energy requirement for the formation of coordination between LiQ and compound 742 does not exist under the high temperatures involved in co-evaporation.
- 69 Professor Schanze further examined the suitability of the organic compounds and metal complexes for forming a coordination bond, as discussed in para. [0034]. In para. 38 of his expert opinion, he points out that para. [0034] highlights the good coordination ability of pyridinic nitrogens with metal complexes and that, with regard to the structural diversity of the preferred compounds (I) to (XXIII), this ability should be attributed to the pyridinic nitrogen as such, rather than to the overall structure of the respective compound.
- 70 Pyridinic nitrogen atoms are characterized by being bound in the heteroaromatic with one C=N double bond and one C–N single bond to adjacent carbon atoms – i.e., the following structural element is present: C=N–C. Pyridinic nitrogens occur in the heteroaromatics of the preferred compounds once or twice per ring; in compound 742, even three times per ring. To aid comprehension, the pyridinic nitrogens of compound (I) of the asserted patent and of compound 742 are marked below:



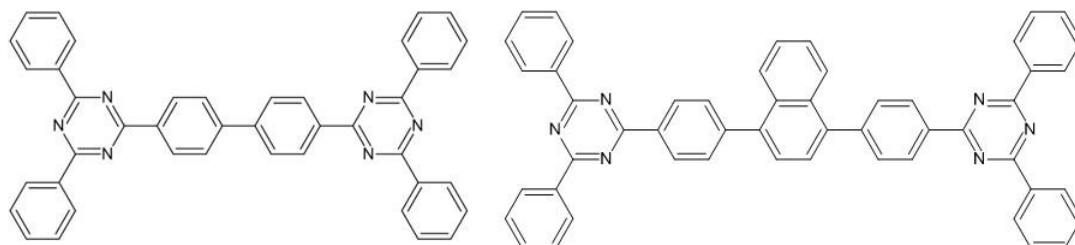
- 71 As shown in the illustration above, the preferred compound (I) (which falls under the main claim) contains a total of 6 pyridinic nitrogen atoms capable of coordinating to metal complexes. These are distributed across 4 heteroaromatics, each containing one or two such pyridinic nitrogen atoms. Compound 742 likewise contains a total of 6 pyridinic nitrogen atoms capable of coordinating to metal complexes, distributed across 2 heteroaromatics, each containing 3 pyridinic nitrogen atoms.
- 72 In paras. 39–45 of his expert opinion, Professor Schanze further explains that it is well documented in the literature that the metal complex LiQ coordinates with such pyridinic nitrogen atoms. He demonstrates that the bonding capacity is discussed in the literature for structurally very diverse compounds, and concludes that the bonding capacity does not depend on the exact individual structure of the compound, but exists generally for pyridinic nitrogens (see para. 46). The diversity of the compounds mentioned is shown below:



73 In para. 41, Professor Schanze explains that in the co-evaporation of LiQ with BPhen (the compound shown below, containing two pyridinic nitrogen atoms), the formation of a coordination bond between the metal complex LiQ and BPhen was even confirmed experimentally using X-ray photoelectron spectroscopy (XPS). Thus, experimental evidence was obtained showing that the metal complex LiQ forms a coordination bond with pyridinic nitrogen atoms as required under feature 1.d) bb) (1) (see para. 42 of the expert opinion).



74 This detection method via XPS cannot be used in reverse engineering of the contested embodiment. However, it is possible to co-evaporate compound 742 with LiQ in a model experiment and examine the resulting deposited film using XPS. This is exactly what Professor Schanze attempted. Unfortunately, compound 742 is not commercially available (at least not on short notice), so Professor Schanze had to resort to a very similar alternative. The choice fell on compound BTB, which is almost identical to compound 742 and differs only in the number of aromatics between the heteroaromatics. The following illustration shows compound BTB on the left and compound 742 on the right:



75 It is evident that BTB and compound 742 are almost identical and in particular contain the same structural motifs – specifically, the same terminal heteroaromatics, each substituted with two phenyl rings. In para. 48, Professor Schanze concludes that BTB is the ideal substitute for compound 742 in his experiments and will behave in the same way as compound 742.

76 In other words: Professor Schanze confirms that the experimental and analytical results obtained using BTB can be transferred to compound 742.

77 In paras. 49-52, Professor Schanze describes the experimental setup and the XPS analysis, and in paras. 53-55 the results of the XPS measurements. He states that the lithium signal

of a reference sample of pure LiQ was shifted in the samples in which LiQ was co-evaporated with BTB – i.e., a chemical interaction between BTB and LiQ took place (para. 56). He further explains that the shift in the lithium signal can be explained by electron density being transferred from the metal complex LiQ to the electron-deficient heteroaromatics of compound 742 – i.e., a complex–ligand charge transfer occurs – and that this is the result of coordination of BTB to the metal complex LiQ (para. 55). He therefore concludes in para. 57 that the results convincingly demonstrate that compound BTB is coordinated to the metal complex LiQ.

78 In para. 59 of the expert opinion, Professor Schanze summarizes his findings and concludes that there can be no reasonable scientific doubt that LiQ and compound 742 also coordinate during co-evaporation.

79 To summarize: The Defendant's claim that LiQ exists as a stable hexamer during co-evaporation and therefore cannot coordinate with compound 742 is untenable, as it ignores temperature and entropy. Rather, it is well documented in the literature that LiQ can coordinate with compounds containing pyridinic nitrogen atoms – even during co-evaporation. The coordination ability is attributable to the pyridinic nitrogen and not to the specific structure of the compound. Since compound 742 contains six pyridinic nitrogen atoms, it must be assumed that it too coordinates with LiQ during co-evaporation. Such coordination under these conditions was also demonstrated experimentally for compound BTB, which is very similar to compound 742. In light of the theoretical considerations – particularly the fact that the coordination ability is defined by the pyridinic nitrogen, not the overall structure – and the experimental results for BTB, there remains no scientifically reasonable doubt that compound 742 coordinates with LiQ during co-evaporation and that feature 1.d) bb) (1) is fulfilled.

80 In paras. 51 and 52 of the Defendant's SoD, the Defendant further attempts to cast doubt on the coordination ability of LiQ and on LiQ's suitability to participate in the charge transfer between molecules as described in paragraph [0007] of the patent-in-suit. However, these doubts are also unfounded, as is already partially evident from the above statements and, in particular, from Professor Schanze's experimental investigations and the scientific works he cites. That the Defendant's submissions and those of its expert are incorrect is discussed by Professor Schanze in paras. 59-71 of his expert opinion, which are referenced here.

81 One line of reasoning from Professor Schanze deserves special emphasis: in paras. 67-69 of his expert opinion, he highlights that the alleged unsuitability of LiQ to participate in the charge transfer between molecules (as described in para. [0007] of the patent-in-suit) stands

in stark contradiction to LiQ's well-known ability to enhance charge transport within the electron transport layer. In this regard, we refer (as does Professor Schanze in para. 68) to Exhibit PS 14, where pages 11 and 12 explain, in relation to the fabrication of modern electron transport layers (ETL = "Electron Transport Layer"), that organolithium complexes such as LiQ (abbreviated as "Liq") are added as performance-enhancing dopants to improve electron mobility in the electron transport layer:

"More recently, several designs of electron-deficient molecules with large aromatic planes such as 2,4,6-tris(biphenyl-3-yl)-1,3,5-triazine (T2T) [...] have demonstrated very high mobilities and improved device performance. In addition to selecting materials with high inherent mobilities, the ETL can be doped to further improve the mobility within the layer. One common class of material for this are organolithium complexes such as Liq" (Herv. diesseits)

In German:

"More recently, several designs of electron-deficient molecules with large aromatic planes such as 2,4,6-tris(biphenyl-3-yl)-1,3,5-triazine (T2T) [...] have demonstrated very high mobilities and improved device performance. In addition to selecting materials with high inherent mobilities, the ETL can be doped to further improve the mobility within the layer. One common class of material for this are organolithium complexes such as Liq" (emphasis added)

- 82 The Defendant's assertion that LiQ is not capable of improving electron transport via charge transfer is thus without merit.

### III. Infringement of Independent Method Claim 13

- 83 The new features of method claim 13 (formerly claim 15) are identical to the new features of claim 1. We refer, with respect to the realization of the new features of claim 13, to our corresponding submissions regarding claim 1.
- 84 With regard to the co-equal method claim 13, the Defendant merely (!) doubts that the contested embodiments constitute a **direct product of a patented process** within the meaning of Section 9 no. 3 PatG (SoD paras. 54–60). This, however, is clearly the case.
- 85 The decisive question is whether the characteristic properties of the product manufactured by the patented process have been retained in the device under consideration. In the summarizing words of *Scharen* (in: Benkard, PatG, 12th ed. 2023, Section 9 PatG, para. 55; emphasis added):

It can generally be said that a product which, despite further processing (post-treatment, modification, combination, or mixing), has essentially retained its *characteristic identity* (see Regional Court of Düsseldorf, November 10, 2011 – 4a O 143/10), or which, despite further processing, has retained its characteristic properties or the *features that define it* from a market perspective and its independence (see Higher Regional Court of Düsseldorf, e.g. April 28, 2011 – I-2 U 146/09 para. 132; IPRspr 2010, no. 211, 535 para. 72, with further references; Higher Regional Court of Karlsruhe, InstGE 11, 15), constitutes a direct product of a process – i.e., if the characteristic properties of the initial product are *also characteristic of the final product* (see Greiner-Wittner, p. 206). This is the case, for example, where a raw material or intermediate product is merely fabricated or configured into a finished product without undergoing any substantial change in its nature or characteristic properties, so that the finished product continues to embody the character of the raw material or intermediate product (see Regional Court of Düsseldorf, January 6, 2012 – 4 O 246/95 para. 102, with further references; von Pechmann, GRUR 1977, 377 (378)).

- 86 That is clearly the case here. The contested embodiments specifically benefit from the improved properties of the electron transport layer, which characterizes the invention and is the result of the protected manufacturing method.
- 87 Claim 13 is directed at the manufacture of an organic electronic device. As the Defendant correctly states, this may, for example, be an OLED (or even an OLED array) with the claimed electron transport layer. This exact organic electronic device with the claimed deposited layer is present in unchanged form in the contested embodiments. This is evident not least from the fact that the undisputed evidence of infringement was based on the layers in the mobile phone placed on the market in the Federal Republic of Germany (and not, for instance, on some kind of intermediate product).
- 88 In the contested embodiments, the direct process product of claim 13 is merely incorporated into a complex final product. It is in no way lost in the contested embodiments. No chemical or physical transformation of the layer deposited according to the invention takes place. The contested embodiments contain a direct product of a process within the meaning of Section 9 no. 3 PatG.

### C. No Personal Right of Prior Use

- 89 The Defendants are not entitled to a personal right of prior use under Section 12 PatG. They do not appear to claim any right of prior use arising in their own persons within the relevant territory of the Federal Republic of Germany. However, the Defendants' submissions also provide no basis for a derived right of prior use. The Defendants assert a right of prior use allegedly derived from the German distribution subsidiary iRiver Europe GmbH of ReignCom Ltd. on the basis of the sale (not of mobile phones, but rather) of MP3 players with the designation iRiver Clix 2. However, the Defendants are not even able to show that iRiver Europe GmbH would itself be entitled to a right of prior use from which the Defendants could derive rights.
- 90 First, the Defendants have not shown that the allegedly previously used MP3 players "iRiver Clix 2" were (still) being sold in Germany at the priority date of the patent-in-suit.
- 91 Furthermore, the form of infringement in question represents a further development that is not covered by the alleged right of prior use.
- 92 In any event, the alleged right of prior use would not have any effect upstream in the distribution chain toward the right holder, as the Defendants suggest.
- 93 Moreover, the allegedly previously used variant (regardless of by whom) does not fall within the scope of protection of the patent-in-suit according to main request 1 in its presently asserted, restricted form, and therefore a personal right of continued use is also excluded for legal reasons.
- 94 In this context, it must be generally noted that strict requirements apply to the substantiation and burden of proof on the part of the Defendant in relation to personal (as well as so-called public) prior use, since the relevant facts typically lie outside the sphere of insight of the patent holder. Therefore, there must be no reasonable doubt about the existence of a right of prior use. Any uncertainty tends to be at the expense of the Defendant (see *Kühnen*, Handbuch der Patentverletzung [Handbook of Patent Infringement], 16th ed. 2024, E. para. 666).

### I. No Possession of the Invention by the Defendants

- 95 With respect to the Defendants' statements regarding possession of the invention, we first contest with lack of knowledge that the examined display (see Exhibit B5) is a display panel with the model name AMBB004. Contrary to the Defendants' assertions, the images do not show that the letters "BB" are embossed on the substrate designated as such by the

Defendants. The symbols highlighted by the Defendants are not discernible due to the quality of the images. Moreover, it is unclear why the letters “BB” should refer to the display model AMBB004 of the Defendants. The images also do not reveal the alleged manufacturer designation “Samsung SDI.”

## II. No Exercise of Invention Possession at the Priority Date

- 96 The Defendants have not demonstrated that the German distribution subsidiary iRiver Europe GmbH of ReignCom Ltd. exercised possession of the invention at the priority date.
- 97 The submission of the Defendants, who bear the burden of pleading and proof in this respect, does not reveal whether the MP3 player designated “iRiver Clix 2” was still being distributed in Germany at the priority date, i.e., on September 26, 2008, or whether iRiver Europe GmbH or ReignCom Ltd. had already ceased distributing the “iRiver Clix 2” before that. The statutory declaration submitted as Exhibit B3 by Mr. Bongil You indicates that sales figures for the “iRiver Clix 2” declined in 2008 compared to 2007 [REDACTED]. While in 2007, [REDACTED] units were sold in the EU, in the year [REDACTED] [REDACTED] units could be sold. [REDACTED] may be connected with the market launch of the iPod Shuffle and also with the emergence of novel smartphones such as the Apple iPhone in 2007, which also had integrated MP3 players. This led to a significant drop in demand for classic MP3 players from 2007 onward. In fact, ReignCom publicly announced as early as **May 2006** that it intended to focus on mobile handheld games and other electronic devices, and declared that it would exit the market for “personal music players” (PMP):

ReignCom announced in **May 2006** that it would adjust its focus toward hand-held mobile gaming<sup>[23]</sup> and other electronics, publicly reporting its **intentions of quitting the PMP market.**<sup>[21]</sup> It has also reported sluggish sales for its music player business, <sup>[24]</sup> including a loss of 35.58 billion won (US\$36.68 million) in 2005, compared with a

Source: <https://en.wikipedia.org/wiki/IRiver>

- 98 Already in 2006, the market share in Europe appears to have fallen to as little as 0.4%:

the corporate "Heartbeat Philosophy" of "dedication to its customers".<sup>[28]</sup> Its European market share had **dropped to 0.4% in 2006**, down from 1.3% the year prior, and it had also fallen in Japan and the US.<sup>[16]</sup>

Source: <https://en.wikipedia.org/wiki/IRiver>

99 Of note in this context is the following:

In the statutory declaration of Mr. Bongil You, submitted as Exhibit B3, the sales figures for 2007 are broken down by month; he demonstrates detailed knowledge of the relevant revenue data. However, the figures for 2008 – which is the decisive year with respect to the priority of the patent-in-suit dated September 26, 2008 – are not similarly broken down, as the following excerpt from the redacted version of the statutory declaration of Mr. Bongil You (Exhibit B3) shows (emphasis added):

5. In 2007, [REDACTED] Clix 2 products were sold in the EU. The monthly number of the products sold in the EU in 2007 are as follows:

| Month     | Units Sold |
|-----------|------------|
| February  | [REDACTED] |
| March     | [REDACTED] |
| April     | [REDACTED] |
| May       | [REDACTED] |
| June      | [REDACTED] |
| July      | [REDACTED] |
| August    | [REDACTED] |
| September | [REDACTED] |
| October   | [REDACTED] |
| November  | [REDACTED] |
| December  | [REDACTED] |

6. In 2008, [REDACTED] Clix 2 products were sold in the EU.

100 Since no alternative explanation for the difference in precision presents itself, it is already likely on the basis of the Defendants’ own submissions that the distribution of the “iRiver Clix 2” MP3 player by iRiver Europe GmbH in the EU, and particularly in Germany, was **definitively discontinued** in the course of 2008 – and, more specifically, before the priority date of the patent-in-suit (September 26, 2008). The article submitted by the Defendants from the magazine “stereoplay” does not support any other conclusion either – it also dates from 2007.

101 The impression that the distribution of the allegedly previously used MP3 players was discontinued significantly before the priority date of the patent-in-suit (September 26, 2008) is reinforced by a glance at the German commercial register. The extract from the commercial register for the German distribution subsidiary iRiver Europe GmbH of ReignCom Ltd. is submitted as

– Exhibit PS 16 –.

102 Line 4 of the commercial register extract shows that, on April 30, 2008, it was registered that iRiver Europe GmbH was **dissolved** (emphasis added):

|                                                                                                                                                                                                    |                                       |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------|
| a)<br>If only one liquidator has been appointed, they shall represent the company alone. If multiple liquidators have been appointed, the company shall be jointly represented by the liquidators. | b)<br>The company has been dissolved. | a)<br>04/30/2008<br>Harder<br>b)<br>Case 5 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------|

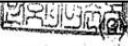
- 103 Among the documents filed with the commercial register for the company is also a shareholder resolution of ReignCom dated February 6, 2008, submitted as

– Exhibit PS 17 –.

- 104 According to this, iRiver Europe GmbH was already dissolved with effect from the end of March 31, 2008, i.e., **nearly six months before** the priority date of the patent-in-suit (September 26, 2008), and the then managing directors were dismissed:

|                                                                                                                                                                              |                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waiving all requirements as to call and notice under Statute and Articles the undersigned hereby conducts a shareholders' meeting of GmbH, resolving unanimously as follows: | Unter Verzicht auf die Einhaltung aller gesetzlichen und gesellschaftsvertraglichen Form- und Fristvorschriften hält die Unterzeichnete hiermit eine Gesellschafterversammlung der GmbH ab und beschließt folgendes: |
| (1) The company shall be dissolved with effect as of the end of March 31, 2008.                                                                                              | (1) Die Firma wird mit Wirkung zum Ablauf des 31. März 2008 aufgelöst.                                                                                                                                               |

[...]

|                                                               |                                                                                          |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------|
| (3) Mrs.                                                      |  Frau |
|                                                               | Young-Hee Han<br>born on / geboren am 04.02.1967                                         |
| and Mr.                                                       | und Herr                                                                                 |
|                                                               | Dong Ki Yang<br>born on / geboren am 18.02.1963                                          |
| are hereby recalled as managing directors.                    | werden hiermit als Geschäftsführer abberufen.                                            |
| Their actions as managing directors are approved.             | Ihnen wird Entlastung erteilt.                                                           |
| (4) The liquidation business year shall be the calendar year. | (4) Das Liquidationsgeschäftsjahr ist das Kalenderjahr.                                  |
| February 26, 2008                                             | 26. Februar 2008                                                                         |
|                                                               | Reigncom Ltd.                                                                            |
|                                                               |       |
|                                                               | Myoung Woo LEE<br>President / Präsident                                                  |

- 105 Thus, at the priority date of the patent-in-suit, no right of prior use existed for iRiver Europe GmbH that could have been (regardless of the fact that it concerned MP3 players, not mobile phones) derived. For this reason alone, the Defendants cannot invoke a derived right of prior use, as this would require that the right of prior use first arose with iRiver Europe GmbH. Furthermore, the following should be noted:
- 106 The statement in paragraph 7 of the statutory declaration submitted as Exhibit B3, according to which approximately 20% of the “iRiver Clix 2” MP3 players were allegedly sold in Germany (as estimated by Mr. Bongil You), is entirely vague and insufficient. It is particularly unclear – and is contested for lack of knowledge – whether this was still the case at or after the priority date (September 26, 2008) of the patent-in-suit. The Defendants’ submissions are not sufficiently substantiated in this respect.
- 107 The statement in the statutory declaration by Mr. Byunghoon Chun that corresponding displays were delivered to ReignCom Ltd. by Samsung SDI Co. Ltd. (SDI) and Samsung Mobile Display Co., Ltd. (SMD) until 2009 does not support a different conclusion. ReignCom Ltd. was based in South Korea. Even the Defendants do not claim that these were sales in Germany. These (phasing-out) deliveries may particularly relate to contractually guaranteed long-term delivery obligations and purchase commitments.
- 108 Since the sales figures for the “iRiver Clix 2” in the EU – and particularly in Germany – are not publicly accessible, we also contest, purely as a precaution and with lack of knowledge, that the “iRiver Clix 2” MP3 player was still being sold (by iRiver Europe GmbH or anyone else) in Germany at the priority date of the patent-in-suit (September 26, 2008).
- 109 Finally, the statutory declaration also does not clarify why different references (AMBA010 and AMBB004) are cited, or how they differ. We contest with lack of knowledge that both categories refer to AMOLED screens used in the iRiver Clix 2, and particularly in those allegedly supplied to Germany.

### III. Infringing Version Not Covered by the Scope of the Alleged Right of Prior Use

- 110 The reliance on an allegedly derived right of prior use from iRiver Europe GmbH is also precluded because the infringing version represents a **further development** that is not covered by the right of prior use.

#### 1. Further Development

- 111 The infringing version is a further development that is not encompassed by the Defendants' alleged right of prior use.
- 112 The personal right of prior use constitutes an exception favorable to the prior user against the patent holder, and is therefore to be interpreted narrowly. Its purpose is to prevent a legitimately acquired legal position from being impaired by the rights arising from a patent application (see Enstahler, in: Fitzner/Kubis/Bodewig/Metzger, BeckOK Patentrecht [Beck Online Commentary on Patent Law], 33rd ed., as of 04/15/2023, Section 12 PatG, para. 1). Based on this, the Federal Court of Justice (BGH) concluded in its decision *Biegevorrichtung* [Bending device] that prior users are barred from further developments that exceed the scope of the previous use. The BGH stated in that decision (BGH, Judgment of 11/13/2001 – X ZR 32/99, GRUR 2002, 231, 234 – *Biegevorrichtung*, emphasis added):

Consistent with the function of this provision, the prior user is – as far as the intrusion into the patent holder's exclusive rights is concerned – limited to the legal position protected by the exception. Use of the patented teaching is only permitted to the extent described by this position; further developments that go beyond the scope of previous use are, however, barred if they encroach on the subject matter of the protected invention. Otherwise, the prior user's rights would be expanded in a way that is no longer covered by the purpose and intent of the exception. Authorizing use of such modifications would not only protect the legal position existing at the time of the patent application, but would extend it – with a corresponding further limitation of the patent – to something that did not originally exist. This is not justified either by the function of the provision or by the underlying rule-exception relationship. In particular, fairness does not require such an expansion.

- 113 A further development that excludes the right of prior use is especially present when the infringement results in a deepened encroachment on the scope of protection by transitioning to the further developed prior-use subject matter (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed. 2024, E. para. 670). This is particularly the case when the (alleged) prior user uses the invention in a quantitatively or qualitatively more extensive manner or in a different way than corresponds to their previously held legal position, or if a feature of the patent claim is implemented in a technically different way than was the case

at the time of filing (see BGH, Judgment of 05/14/2019 – X ZR 95/18, GRUR 2019, 1171, 1174 – Schutzverkleidung [Protective cladding]).

- 114 In particular, the alleged prior user cannot invoke a right of prior use if the version used only after the priority date implements the teaching of the patent claim in a different form or method (see BGH, Judgment of 05/14/2019 – X ZR 95/18, GRUR 2019, 1171, 1174 – Schutzverkleidung) or if the further development provides an additional benefit that the (unmodified) previously used subject matter did not achieve (see BGH, Judgment of 06/20/2023 – X ZR 61/21, GRUR 2023, 1184, 1187 f. – Faserstoffbahn). The latter is only inapplicable when the patent specification describes a modification that would have been self-evident to the skilled person at the priority date (BGH, Judgment of 06/20/2023 – X ZR 61/21, GRUR 2023, 1184, 1188 – Faserstoffbahn [Fibrous web]). However, such a self-evident modification certainly does not exist where the limitation or modification – as in this case – is new and inventive (cf. Pesch, GRUR-Prax 2023, 564, see also paras. 127 ff.). Moreover, a right of prior use cannot be asserted in cases of further developments where the alleged prior user merely used an embodiment of the patent without understanding the chemical or physical relationships behind the technical teaching of the patent or the advantages it yields (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed. 2024, E. para. 677).
- 115 That the attacked embodiment is not merely a self-evident modification is particularly apparent from the fact that the extensive prior art concerning LiQ, submitted in the parallel nullity proceedings, does not suggest the organic compound class now claimed in the main request, and therefore also not compound 742. To avoid redundancy, we refer in this regard to the subsequent submission on inventive step as part of the discussion of the validity of the main request.
- 116 Furthermore, it must be taken into account that the Defendants – even by their own submission – assert a (supposedly derived) right of prior use only with regard to the sale and distribution of certain MP3 players under the designation “iRiver Clix 2.” However, the distribution of MP3 players does not establish a right of prior use for the manufacture and distribution of smartphones such as the infringing version. Smartphones are not comparable to MP3 players either qualitatively or quantitatively. In particular, smartphones offer a range of functions far beyond those of an MP3 player. While MP3 players could only play audio files, even the earliest smartphones available on the market offered numerous additional features, such as telephony, text messaging, internet capability, and navigation. All these functions were – and continue to be – primarily controlled via the smartphone’s display.

The display of a smartphone is therefore not comparable, either in quality or quantity, to the display of an MP3 player.

## 2. Business-Related Nature

- 117 The right of prior use is strictly business-specific. It is accessory to the business and cannot be transferred independently. In the event of a change in business ownership, there is no right to exercise the prior use right outside of the originating business in the new owner's enterprise (cf. BGH, Judgment of 02/01/2005 – X ZR 214/02, GRUR 2005, 567, 568 – Schweißbrennerreinigung [Welding torch cleaning]). Moreover, it cannot be duplicated (i.e., split or multiplied) if the legal ownership of the business changes (see BGH, Judgment of 05/22/2012 – X ZR 129/09, 1010, 1011 – Nabenschaltung [Hub gears] III).
- 118 In para. 62 SoD, the Defendants assert that Defendant 2 was founded as a spin-off of Samsung Electronics Co. Ltd., and that the companies S-LCD Co., Ltd. and SMD were merged into it. SMD was said to have been spun off from SDI. Thus, SDI and SMD were predecessor companies of Defendant 2. Defendant 2 therefore allegedly can rely on a supposed right of prior use derived from iRiver Europe GmbH through ReignCom Ltd., and originally held by SDI or SMD.
- 119 This submission is incorrect in multiple respects. First, it is denied with lack of knowledge that SMD was spun off from SDI and that Defendant 2 is a successor company to, among others, SMD. In the event of a business division, the Defendants must set out and prove in which business unit the right of prior use remained under the contractual arrangements made (cf. BGH, Judgment of 02/01/2005 – X ZR 214/02, GRUR 2005, 567, 568 – Schweißbrennerreinigung). This is not evident from the reference to the SDI website. There, for 2008, the only mention is: "Samsung Mobile Display sets sail" (emphasis added):

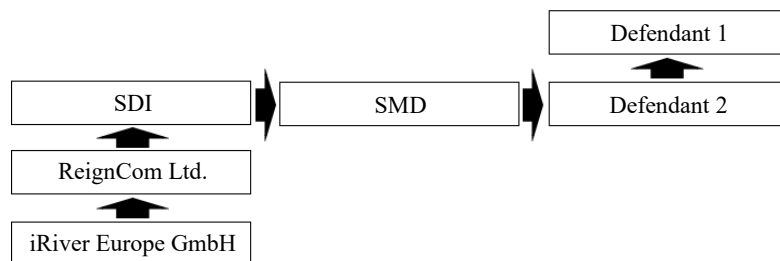
|             |                                                                        |
|-------------|------------------------------------------------------------------------|
| <b>2008</b> | 12 Develops large-sized polymer batteries for polymer laptop computers |
|             | 09 Founds SB LiMotive Inc.                                             |
|             | 08 Samsung Mobile Display sets sail                                    |
|             | 02 Ranks No.1 in IIT evaluations in Japan                              |

Source: <https://www.samsungsdi.com/about-sdi/history.html>

- 120 The excerpt does not indicate in what form operating assets were transferred from SDI to SMD, nor how the spin-off was legally structured. In particular, it does not show that SMD was spun off from SDI. Apart from the fact that a statutory declaration is not an admissible

means of proof in principal proceedings, the statement by Mr. Byunghoon Chun in Exhibit B2 provides no different result. Section 3 of Exhibit B2 does not show how the alleged right of prior use, supposedly derived from iRiver Europe GmbH, passed from SDI through SMD to Defendant 2.

- 121 The alleged transfer of the right of prior use to Defendant 2 as described by the Defendants is therefore denied with lack of knowledge. There appear to be no publicly accessible sources on this. The burden of pleading and proof rests with the Defendants. In addition, the Defendants are asserting a right of prior use allegedly originating from the German distribution subsidiary iRiver Europe GmbH of ReignCom Ltd. According to the Defendants' own statements, the right of prior use has been derived multiple times as follows:



- 122 In this regard, it must be considered that the right of prior use does not extend retroactively up the supply chain to the entitled party. Therefore, a supplier cannot invoke the right of prior use of its customers (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed. 2024, E. para. 681).

#### IV. In the Alternative: Right of Prior Use Has Expired

- 123 In any event, any (derived) right of prior use for the territory of the Federal Republic of Germany would have expired.
- 124 The right of prior use is essentially a right of continued use. It may be forfeited if the use in question is discontinued for an indefinite period before or after the priority date (cf. Higher Regional Court of Düsseldorf, Judgment of 03/14/2018 – I-15 U 49/16, GRUR 2018, 814, 818 – Schutzverkleidung für funktechnische Anlagen [Protective cladding for radio equipment]).
- 125 Even according to the Defendants' own submission, the MP3 players designated “iRiver Clix 2” were distributed in Germany by iRiver Europe GmbH only until 2008 (see above,

paras. 96 ff.). The Defendants therefore would have had to demonstrate and prove that distribution of the previously used product continued in some other form from 2008 onwards. They failed to do so. Therefore – aside from the dissolution of iRiver Europe GmbH on April 30, 2008 – it must be assumed that the asserted, allegedly (derived) right of prior use of the Defendants – even assuming it ever arose – would in any case have expired. The Defendants therefore cannot rely on a personal right of prior use under Section 12 PatG.

## **V. Interim Result**

126 In summary, the Defendants are not entitled to any (derivative) right of prior use, because such a right could not have arisen in the first place due to the dissolution of iRiver Europe GmbH nearly six months before the priority date, and, in general, companies at an upstream commercial level cannot invoke a right of prior use held by a downstream entity. Moreover, the infringing embodiment constitutes a further development not covered by the alleged right of prior use.

## **D. Stay of Proceedings Not Indicated**

127 The present main request is being pursued identically in the nullity proceedings and will prove to be legally valid there. We refer to our arguments in the nullity proceedings, in the statement of opposition (Exhibit Bundle PS 13), which we adopt and summarize as follows:

### **I. Claims 1 and 13 of the Main Request Are Admissible**

128 The Plaintiff in the nullity proceedings raises no objections concerning the original disclosure of the granted claims.

The added features of the main request are also originally disclosed. On the one hand, each specification in the claim is supported by general teachings in the original documents of the patent-in-suit. Furthermore, numerous particularly preferred molecules fall within the scope of the specified organic compound according to the main request.

In detail:

#### **1. Feature 1.d.cc)**

*wherein the organic compound comprises a system of aromatics and heteroaromatics that are each connected to one another by a carbon-carbon single bond.*

129 Feature 1.d.cc) is disclosed in general terms in paragraph [0019]:

“In a further embodiment of the organic electronic component, the organic compound comprises a heteroaromatic that is conjugated with an aromatic via a C–C bond.”

- 130 Additionally, paragraph [0020] discloses that C–C bonds are carbon–carbon single bonds that link aromatics and heteroaromatics, forming a system of such linked compounds:

“A C–C bond is understood to mean a carbon–carbon single bond, i.e., the heteroaromatic and the aromatic are not fused. Such a system, in which the heteroaromatic is linked to further aromatics via C–C single bonds, has the advantage over fused systems that it is not as sterically demanding and bulky and can thus more easily coordinate to a metal complex, or more effectively coordinate to multiple metal complexes simultaneously.”

- 131 Accordingly, numerous specific compounds in the original documents are connected via carbon–carbon single bonds (see, e.g., compounds (I), (II), (XIV), (XX), (XXI), (XXIII)).

## 2. Feature 1.b.dd)

*wherein the system comprises more than one heteroaromatic.*

- 132 Para. [0018] of the original disclosure states in general terms that organic compounds with more than one heteroaromatic are preferred and gives a rationale:

“The organic compound preferably comprises more than one heteroaromatic.  
... The greater the number of heteroaromatics in the organic compound, the greater the number of potential coordination sites for a metal complex.”

- 133 Again, the same specific compounds that exhibit the carbon–carbon single bonds according to feature 1.d.cc) also contain more than one heteroaromatic (see, e.g., compounds (I), (II), (XIV), (XX), (XXI), (XXIII)).

## 3. Feature 1.b.ee)

*wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms and contain nitrogen as the heteroatom.*

- 134 The general teaching and rationale for selecting according to feature 1.b.ee) is found in para. [0023]:

“In another embodiment of the organic electronic device, the organic compound comprises only heteroaromatics whose rings are formed of six atoms. These heteroaromatics can most effectively form a delocalized  $\pi$ -electron system in

conjugation with other heteroaromatics or aromatics, which is well-suited to accept additional charge. The heteroatom in the heteroaromatic is preferably N, O, or S, with N being particularly preferred.”

- 135 Paragraphs [0018] and [0020], already cited, also disclose nitrogen as a preferred heteroatom. The specific compounds previously discussed (I), (II), (XIV), (XX), (XXI), (XXIII) consist solely of six-membered rings and nitrogen heteroatoms.

#### 4. Feature 1.b.ff)

*wherein the system comprises 5 to 8 aromatics and heteroaromatics, wherein the aromatics and heteroaromatics may each independently be substituted with methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.*

- 136 Finally, feature 1.b.ff) is disclosed in para. [0024]:

“n is 2 to 8, wherein the free valences at the ends may independently be saturated by H, methyl, phenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.”

- 137 In the main request, the lower bound for the number of ring members was raised from two to five. The teachings of the original documents of the patent-in-suit emphasize that “large delocalized electron systems” exhibit particularly favorable transport properties (see SP1, paras. [0031], [0033]). Accordingly, a person skilled in the art would focus on the upper end of the range stated in para. [0023].
- 138 This is further supported by the specific compounds (I), (II), (XIV), (XX), (XXI), (XXIII), all of which have more than four six-membered rings (compound (XXI) can be seen as having eight rings, with terminal rings substituted with phenyl groups).
- 139 Thus, all of the features added in the main request concerning the organic compounds are disclosed in the original documents, with appropriate justifications for their selection. Moreover, numerous particularly preferred compounds exhibit the claimed features – most notably compounds (I) and (II), which were used in the experiments.

#### II. Claims 1 and 13 of the Main Request are Novel

- 140 The specific compounds of the main request are not disclosed in any of the cited documents. Nor does the allegedly publicly used mixed layer employ an organic compound that falls within the scope of the main request.

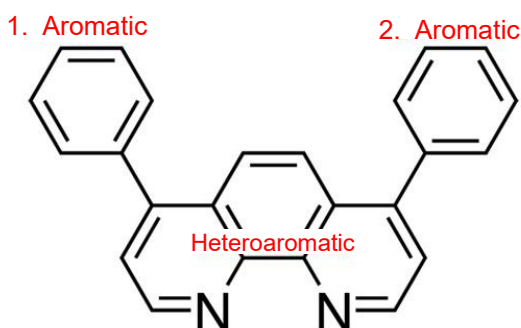
## 1. ZP1 lacks at least features 1.d.dd) and 1.d.ff)

141 ZP1 does not disclose:

*wherein the system comprises more than one heteroaromatic,*

*wherein the system comprises 5 to 8 aromatics and heteroaromatics.*

142 ZP1 proposes only BPhen as the organic compound in an electron-transporting mixed layer (see ZP1, “2. Experiments”). BPhen contains only three aromatics and heteroaromatics: a central phenanthroline molecule (one heteroaromatic) and two terminal phenyl groups (two aromatics). The one heteroaromatic and the two aromatics are annotated as follows in the structure of BPhen:



143 Thus, BPhen has only three aromatics and heteroaromatics (not five to eight) and only one heteroaromatics (not several).

## 2. ZP2 lacks at least features 1.d.dd) and 1.d.ff)

144 ZP2 likewise does not disclose:

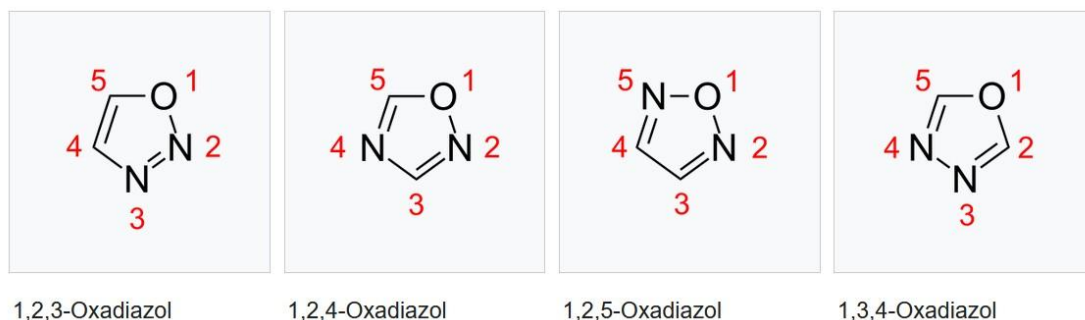
*wherein the system comprises more than one heteroaromatic,*

*wherein the system comprises 5 to 8 aromatics and heteroaromatics.*

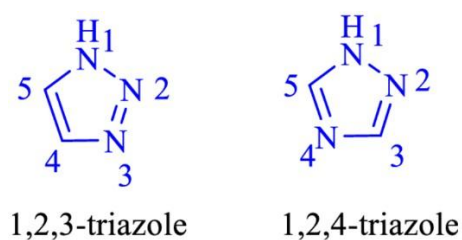
145 In the example primarily cited by the Plaintiff, ZP2 again describes BPhen as the organic compound (see para. [0196]). The previous discussion of BPhen under ZP1 applies here as well.

146 For the additional electron-transporting materials listed in para. [0184], it is not even disclosed that they are mixed with any metal complex or applied via co-evaporation. Furthermore, none of the organic compounds listed in para. [0184] fall within the scope of the main request.

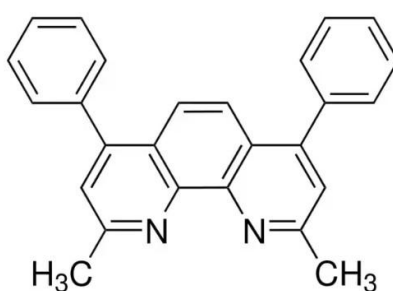
- 147 **a)** Para. [0184] names oxadiazole derivatives such as OXD-7 and PBD. Oxadiazole is a five-membered ring, even though the heteroatoms can be arranged in different isomeric forms:



- 148 None of its derivatives consist exclusively of heteroaromatics with six-membered rings.
- 149 **b)** The same applies to the triazole derivatives, whose isomers always include a five-membered ring:



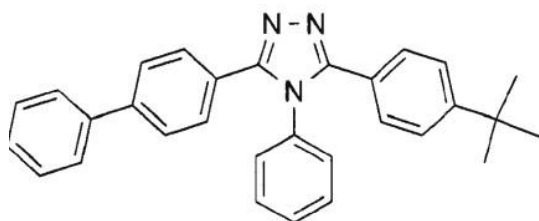
- 150 **c)** The mentioned phenanthroline derivatives contain only one heteroatom and have fewer than five aromatics and heteroaromatics. This has already been demonstrated for BPhen. The same applies to BCP:



- 151 Thus, even apart from the fact that the organic compounds in paragraph [0184] are not disclosed in combination with co-evaporated metal complexes, ZP2 does not disclose any organic compounds that meet features 1.d.cc) – 1.d.ff) of the main request.

### 3. ZP3 at least lacks features 1.d.dd) and 1.d.ff)

- 152 ZP3 again proposes BPhen as the organic matrix material (see ZP3, para. [0117]). The previous statements regarding BPhen apply here. Furthermore, paras. [0118] to [0120] also generally propose phenanthrolines, pyrroles, imidazoles, triazoles, pyridines, pyrimidines, pyridazines, which may optionally be substituted with phenyl and naphthyl groups. However, compounds containing multiple heteroaromatics are not disclosed; consider, for instance, the compound especially preferred in para. [0120]:



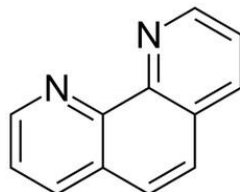
3-(4-Biphenyl)-4-phenyl-5-tert-butylphenyl-1,2,4-triazole

### 4. ZP4 at least lacks features 1.d.dd) and 1.d.ff)

- 153 The preferred electron transport material cited by the Plaintiff in the nullity proceedings in ZP4 is again BCP, as discussed in connection with ZP2 (see ZP4, para. [0082]). Similar to BPhen, BCP contains only one heteroaromatic and a total of only three aromatics and heteroaromatics.

### 5. ZP5 at least lacks features 1.d.dd) and 1.d.ff)

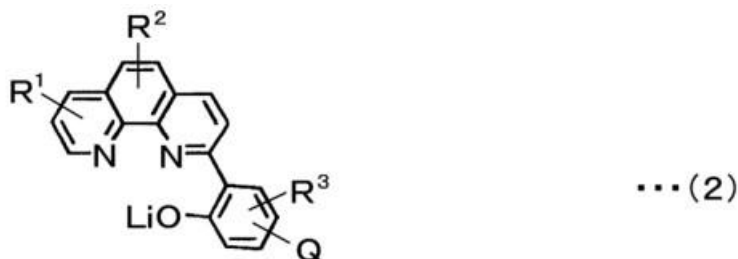
- 154 The Plaintiff in the nullity proceedings refers to the list of ETL materials disclosed in column 5, lines 39–61. Although a large number of aromatic and heteroaromatic systems are disclosed therein, none of the systems combine multiple heteroaromatics in a single compound.
- 155 The compound particularly highlighted by the Plaintiff in the nullity proceedings, “phenanthroline,” is a derivative of BPhen:



- 156 The highlighted compound “bathophenanthroline” is BPhen itself.
- 157 Accordingly, the earlier discussion concerning ZP2 also applies to these two compounds.

## 6. ZP6 at least lacks feature 1.d.ff)

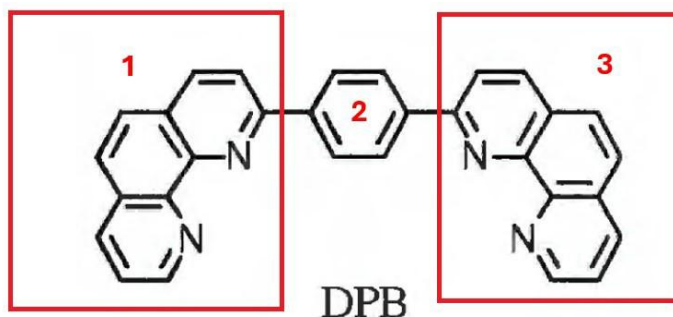
158 ZP6, in its third aspect on page 9 (referring to ZP6a), discloses an ETL material that comprises a lithium complex of formula (2).



159 The definitions of R<sup>1</sup> through R<sup>3</sup> do not include aromatics or heteroaromatics. The definition of Q does include aromatics and heteroaromatics. Even if the lithium complex of formula (2) were to be interpreted as the organic compound of the ETL rather than as a metal complex, at most a system with 3 (hetero)aromatics is present. This conclusion also applies to all compounds shown in paras. [0012] through [0020].

160 However, if the lithium complex of formula (2) were interpreted as the organic compound of the ETL, there is no disclosure of a metal complex to be used in addition to it. ZP6 concerns the use of the lithium complex of formula (2) as a doping metal complex in conventional ETL materials (cf. e.g., paras. [0021], [0022], and [0060]).

161 The Plaintiff in the nullity proceedings refers to the compound DPB disclosed in para. [0060] of ZP6 as the organic compound. However, this compound contains only two heteroaromatics, each consisting of three fused six-membered rings (similar to BPhen), and one aromatic (a phenylene residue), which links the two heteroaromatics. The two BPhen-like heteroaromatics are marked as 1 and 3 below, and the phenylene residue as 2:



162 In summary, ZP6 at least lacks feature 1.d.ff).

**7. ZP7 at least lacks features 1.d.dd), 1.d. ee), and 1.d. ff)**

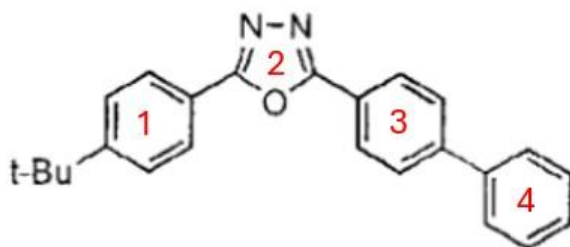
163 ZP7 does not disclose:

*wherein the system comprises more than one heteroaromatic,*

*wherein the organic compound comprises only heteroaromatics whose rings are formed of six atoms*

*wherein the system comprises 5 to 8 aromatics and heteroaromatics.*

164 The oxadiazole derivative cited by the Plaintiff contains only one heteroaromatic, which is moreover a five-membered ring. The molecule as a whole comprises only four aromatics and heteroaromatics:

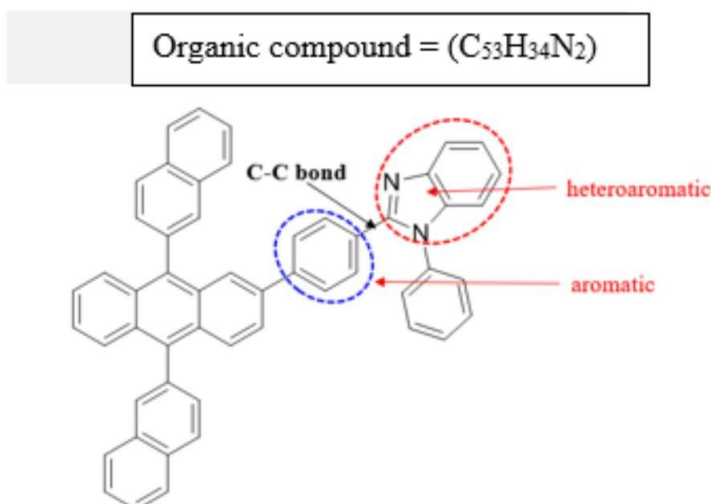


165 In summary , none of the cited documents discloses an organic compound according to the main request.

166 The above statements apply equally to the independent method claim 15.

**8. The alleged public prior use at least does not disclose features 1.d.dd) and 1.d. ee)**

167 In its submission dated June 21, 2024, the Plaintiff in the nullity proceedings asserted a case of public prior use, in which the electron transport layer is alleged to contain the organic compound  $^{698}\text{C}_{53}\text{H}_{34}\text{N}_2$  . On page 14, the following structure is attributed to this compound:



## Annex B4, Page 9

168 The compound contains only a single heteroaromatic (a benzimidazole). Thus, feature 1.d.dd) is not disclosed. Furthermore, benzimidazole is a heteroaromatic in which a five-membered ring (imidazole) is fused with a six-membered ring (a benzene ring). Accordingly, feature 1.d.ee) is also not fulfilled.

### III. Claims 1 and 13 of the Main Request Are Based on an Inventive Step

169 The Plaintiff in the nullity proceedings addresses the inventive step of granted claim 5 – which closely corresponds to the new main request – merely with a dogmatic assertion. In fact, the cited prior art does not render the subject matter of the main request obvious.

170 With regard to the advantages of selecting the organic compound according to the main request, we refer to our statements in Sections B.III.2 and B.IV. As evidenced by the experimental data in the patent-in-suit, the mixed layers according to the main request improve the electronic properties of the organic components.

171 The cited prior art may well serve as a valid starting point for a person skilled in the art who was addressing the same problem on the priority date of the patent-in-suit.

172 However, starting from this point, the subject matter of the main request is not obvious. While it is apparent that the selection of organic materials played an important role, the specific organic compounds of the main request are not found in the cited prior art – despite

the vast number of different materials proposed therein. This fact alone demonstrates that the use of the organic compounds according to the main request was not obvious.

- 173 Moreover, the considerations set out in detail above and reflected in the patent-in-suit, which led to the use of the organic compounds of the main request, are entirely absent from the cited prior art. On the contrary, ZP1 demonstrates that the n-doping of ETL materials – i.e., the addition of metal complexes to ETL materials to improve their electronic properties – was still in its early stages at the time of the patent’s priority date. Thus, ZP1 states on page 90 in its introduction (emphasis added):

„Great efforts have been made to enhance the electron conductivity [21 – 24]. Kido and Matsumoto [22] reported the improved electron transport by doping Li into tris(8-hydroxyquinoline) aluminum (Alq<sub>3</sub>). Fong et al. [21] also demonstrated that the device performance was enhanced significantly by doping 4'7-diphenyl-1,10-phenanthroline (Bphen) into Alq<sub>3</sub> as a cohost electron transport layer (c-ETL). However, few studies have been reported about using lithium quinolinato complex such as 8-hydroxy-quinolinato lithium (Liq) as an electron injection layer (25), and no work has yet been reported about using Liq-doped BPhen as electron transport layer (ETL). In this paper, we have demonstrated a device with an new n-doping (33 wt.% Liq:BPhen) layer as ETL.“

In German:

“Great efforts have been made to enhance the electron conductivity [21 – 24]. Kido and Matsumoto [22] reported the improved electron transport by doping Li into tris(8-hydroxyquinoline) aluminum (Alq<sub>3</sub>). Fong et al. [21] also demonstrated that the device performance was enhanced significantly by doping 4'7-diphenyl-1,10-phenanthroline (Bphen) into Alq<sub>3</sub> as a cohost electron transport layer (c-ETL). However, few studies have been reported about using lithium quinolinato complex such as 8-hydroxy-quinolinato lithium (Liq) as an electron injection layer (25), and no work has yet been reported about using Liq-doped BPhen as electron transport layer (ETL). In this paper, we have demonstrated a device with an new n-doping (33 wt.% Liq:BPhen) layer as ETL.”

- 174 Thus, the metal complex LiQ – now commonly used – had **hardly been explored** at the priority date of the patent-in-suit as an additive to ETL materials for improving conductivity.
- 175 The same applies to ZP3, filed in 2004: According to para. [0003], n-doping of ETL layer materials was known, but para. [0004] proposes as a novel development the doping of these ETL materials with metal complexes. Although the paddlewheel complexes of Cotton are also proposed here in paras. [0025] ff. and [0084], the importance of optimally matching

such complexes with the ETL materials through careful selection of their properties was **not recognized**. Quite the contrary, ZP3 teaches in paras. [0117] and [0122] that ETL materials may be selected broadly and replaced at will (see para. [0122])).

176 As with ZP3, the same holds for ZP6, filed in 2006, which likewise failed to recognize the importance of appropriately matching the ETL material to the doping metal complex. ZP6 also teaches in para. [0036] that the disclosed lithium complexes, if not used as stand-alone ETL materials, may be combined arbitrarily with any other ETL materials.

177 From the foregoing, it is evident that the state of the art regarding the enrichment of ETL layers with metal complexes was still in its **infancy**. In particular, the central considerations of the patent-in-suit, which led to the disclosure of the organic compounds now claimed in the main request, are not present in the prior art – not even in rudimentary form.

178 Still less does the prior art teach that by appropriately selecting the organic compound, **both** the coordinative bonding of the ETL material to the metal complex **and** the charge transport within the molecules of the ETL material could be improved.

179 Finally, the specific solution path pursued in the patent-in-suit, consisting of **six synergistically interacting** individual measures, is also neither disclosed nor suggested in the prior art.

180 The remaining documents ZP2, ZP4, ZP5, ZP7, and ZP8 are more remote but likewise do not lead to the claimed subject matter:

181 ZP2 is primarily concerned with improving hole transport properties; see the summary.

182 ZP4 and ZP5 deal with optimizing the transfer of electrons from the cathode into the electron injection layer; see ZP4, paras. [0022]– [0024], and ZP5, column 2, line 45 to column 3, line 8.

183 ZP7 teaches the combination of multiple ETL materials for a different reason – namely that low-molecular-weight ETL materials exhibit low T<sub>g</sub> values and therefore crystallize too readily. They are therefore to be mixed with higher-molecular-weight ETL materials; see ZP7a, paras. [0067] to [0069].

184 ZP8 teaches polycyclic additives (para. [0038]) as dopants for the ETL material. ETL materials such as AlQ<sub>3</sub> are proposed in para. [0037]. Even if the polycyclic additives are interpreted as the organic compound, that compound still lacks a heteroaromatic.

185 Accordingly, claim 1 is not rendered obvious by the prior art.

186 The same applies to claim 13.

### **E. On Active Legal Standing**

187 The Plaintiff has active legal standing with respect to all asserted claims.

188 In para. 2 of the SoD, the Defendants essentially argue that the chain of title for the patent-in-suit, from OSRAM Opto Semiconductors GmbH via OSRAM OLED GmbH to the Plaintiff, has not been sufficiently proven through Exhibits PSKERW 4, 7a, and 7b.

189 As evidence for the transfer of the patent-in-suit (DE 10 2008 056 391 B4) from OSRAM Opto Semiconductors GmbH to OSRAM OLED GmbH, we again submit the notarial deed dated May 26, 2014, already submitted as Exhibit PS<sub>KERW</sub> 4, with deed number W 1997/14, as

– Exhibit PS<sub>KERW</sub> 4a –.

190 In Exhibit PS<sub>KERW</sub> 4a, we have now left unredacted the line in which the patent-in-suit is mentioned . The patent-in-suit is listed under number 505:

**07.11.2008 10 2008 056 391. 10 2008 056 391**

191 The objection by the Defendants that the list of patents to be transferred, according to Exhibits PS<sub>KERW</sub> 7a and 7b, does not show the patent-in-suit is incomprehensible. In Annex 1 to the 3rd Amendment submitted as Exhibit PS<sub>KERW</sub> 7a, the patent-in-suit is listed on page 7. As the following screenshot shows, the patent number – contrary to the Defendants’ apparent belief – is not redacted:

| Application number       | Publication date  | Publication number     |
|--------------------------|-------------------|------------------------|
| <b>10 2008 056 391.9</b> | <b>01.04.2010</b> | <b>10 2008 056 391</b> |

192 Apart from this, at the time of the transfer of the patent-in-suit to the Plaintiff – i.e., at the time of the conclusion of the 3rd Amendment on October 11, 2023 – OSRAM GmbH was acting on behalf of OSRAM OLED GmbH and with authority to represent.

- 193 That OSRAM GmbH was acting on behalf of OSRAM OLED GmbH already follows from the fact that, pursuant to Section 2(a) of the PPLEA submitted as Exhibit PSKERW 7b, in conjunction with Section 7 of the 3rd Amendment submitted as Exhibit PSKERW 7a, all of the “3rd Amendment Patents” listed in Annex 1 were transferred from the “Affiliate Owners” to the Plaintiff. The patent-in-suit is expressly named in the list of 3rd Amendment Patents in Annex 1 to the 3rd Amendment. A more specific designation of the Affiliate Owners is not required in this context. It was clear to the Plaintiff that OSRAM GmbH was also acting on behalf of its affiliates, including OSRAM OLED GmbH. OSRAM OLED GmbH is sufficiently identifiable (cf. inter alia Ellenberger, in: Grüneberg, Bürgerliches Gesetzbuch [Civil Code], 82nd ed., Section 164 of the German Civil Code (BGB) para. 1).
- 194 OSRAM GmbH acted with representative authority on behalf of OSRAM OLED GmbH. As evidence, we submit a “Confirmation of Authorization, Subsequent Approval and Patent Assignment Agreement” (hereinafter: CASAPAA) dated April 22, 2024, in copy as

– Exhibit PS 18 –.

- 195 Section 2.2 states as follows:

OSRAM and OSRAM OLED hereby confirm that OSRAM was duly authorized by OSRAM OLED to assign the 3rd Amendment Patents owned by OSRAM OLED according to the 3rd Amendment at the time OSRAM and Pictiva entered into the 3rd Amendment.

OSRAM and OSRAM OLED hereby confirm that OSRAM was duly authorized by OSRAM OLED to assign the 3rd Amendment Patents owned by OSRAM OLED according to the 3rd Amendment at the time OSRAM and Pictiva entered into the 3rd Amendment.

- 196 To prove that the respective signatories were authorized to sign the CASAPAA on behalf of OSRAM GmbH and OSRAM OLED GmbH, we submit copies of the respective commercial register excerpts as

– Exhibit Bundle PS 19 –.

- 197 The CASAPAA was signed on behalf of OSRAM GmbH by Dr. Kai Rossig and Dr. Matthias Lack. Both hold joint signing authority together with another authorized signatory (emphasis added):

5. **Signing authority:**

Joint signing authority together with a managing director or another authorized signatory:  
 Gérard, François-Xavier, Munich, born 06/04/1968  
**Dr. Lack, Matthias, Planegg, born 12/27/1977**  
 Mittenhuber, Roland, Gauting, born 03/26/1960  
**Dr. Rossig, Kai, Munich, born 07/07/1971**  
 Wu, Junfei (Adam), Icking, born 09/29/1975  
 van Staa, Frederik Willem Arend Leonard, 's-Hertogenbosch/Netherlands, born 06/28/1971

198 The CASAPAA was signed on behalf of OSRAM OLED GmbH by Ms. Anke Flügel and Mr. Wolfgang Lex. Ms. Anke Flügel is the sole managing director authorized to represent OSRAM OLED GmbH individually. Mr. Wolfgang Lex is an authorized signatory (emphasis added):

4. a) **General rules of representation:**

**If only one managing director has been appointed, they shall represent the company alone.** If multiple managing directors have been appointed, the company shall be represented by two managing directors or by one managing director together with an authorized signatory.

b) **Management board, executive body, managing directors, general partners, authorized representatives, and special powers of representation:**

**Managing Director: Flügel, Anke,** Wolnzach, born 12/22/1972

5. **Signing authority:**

Joint signing authority together with a managing director or another authorized signatory:  
**Lex, Wolfgang,** Barbing, born 11/06/1961

199 On behalf of the Plaintiff, the CASAPAA was signed by Ms. Angela Quinlan. Ms. Angela Quinlan is a director of the Plaintiff and, as such, authorized to represent the company under Irish law. We submit a corresponding excerpt from the Irish Companies Registration Office (CRO) as

– Exhibit PS 20 –

and in German translation as

– Exhibit PS 20a –.

200 To further confirm that Ms. Angela Quinlan was individually authorized to represent the company, we also submit a corresponding board resolution of the Plaintiff dated June 25, 2020, as

– Exhibit PS 21 –

and in German translation as

– Exhibit PS 21a –.

201 That the signatory of the board resolution, Mr. Rodney O'Rourke, was the sole director of the Plaintiff at the time of signing is evident from the Irish Companies Register. We submit an excerpt from the Irish Companies Register as

and in German translation as

– Exhibit PS 22a –.

202 As can be seen from Section 1.1 of the board resolution, the board resolution relates to the Patent Purchase, License and Exploitation Agreement (“PPLEA,” “Transaction”) mentioned in the statement of claim and the reply brief and underlying the transfer of the patent-in-suit. This also includes agreements such as the 3rd Amendment that supplement the PPLEA.

203 Under Section 3.1 of the board resolution, each director is individually authorized to sign documents relating to the approval of the transfer (“Transaction”). Section 3.1(d) states:

any director of the Company [...] is [...] authorised to approve [...] any Transaction Document [...] the execution, approval or issue thereof [...].

In German:

any director of the Company [...] is [...] authorized to approve [...] any Transaction Document [...] the execution, approval or issue thereof [...].

204 Additionally, under Sections 3.1(e) and (f), each director is empowered to sign documents in connection with the transfer under the PPLEA:

each Transaction Document, together with any other document, deed or instrument necessary or desirable or expedient to be issued, entered into or executed and delivered by the Company in connection with or pursuant to the Transaction or any Transaction Document (i) be executed by any director [...];

any director of the Company be and is hereby authorised to: approve, issue, execute and/or deliver in the appropriate manner [...] any other document which such director considers necessary or desirable or expedient to be approved, issued, executed and/or delivered by the Company in connection with or pursuant to the Transaction and any Transaction Document or any Further Document [...].

In German:

each Transaction Document, together with any other document, deed or instrument necessary or desirable or expedient to be issued, entered into or executed and delivered by the Company in connection with or pursuant to the Transaction or any Transaction Document (i) be executed by any director [...];

any director of the Company be and is hereby authorized to: approve, issue, execute and/or deliver in the appropriate manner [...] any other document which such director

considers necessary or desirable or expedient to be approved, issued, executed and/or delivered by the Company in connection with or pursuant to the Transaction and any Transaction Document or any Further Document [...].

205 As a precaution, OSRAM OLED GmbH approved the prior legal act in Section 3 of the CASAPAA (Exhibit PS 18). Furthermore, the rights to the patent-in-suit were again transferred from OSRAM OLED GmbH to the Plaintiff in Section 4 of the CASAPAA to the extent of the PPLEA and the 3rd Amendment. Sections 3 and 4 of the CASAPAA state as follows:

“3.1. Precautionary, OSRAM OLED hereby approves (“genehmigt”) the sale, transfer, assignment and conveyance of all Assigned Patents and 3rd Amendment Patents owned by OSRAM OLED and all related rights to the extent stipulated in the PPLEA and in the 3rd Amendment.

3.2. For the avoidance of doubt, the subsequent approval (“Genehmigung”) according to this Section 3 of this Agreement includes an approval according to Section 177(1) German Civil Code (BGB – Representation without Authority) and Section 185(2) German Civil Code (BGB – Disposition by Unauthorized Person).”

„4.1. In the further alternative and for adequate consideration, the receipt of which is acknowledged, OSRAM OLED hereby assigns, transfers and conveys to Pictiva all of OSRAM OLED’s right, title and interest in and to the Assigned Patents and the 3rd Amendment Patents and all related rights to the extent stipulated in the PPLEA and the 3rd Amendment.

4.2. Subject to the terms of this Agreement, Pictiva accepts the assignment, transfer and conveyance of the rights as stipulated in this Section 4 of this Agreement.”

In German:

“3.1. Precautionary, OSRAM OLED hereby approves the sale, transfer, assignment and conveyance of all Assigned Patents and 3rd Amendment Patents owned by OSRAM OLED and all related rights to the extent stipulated in the PPLEA and in the 3rd Amendment.

3.2. For the avoidance of doubt, the subsequent approval according to this Section 3 of this Agreement includes an approval according to Section 177(1) German Civil Code (BGB – Representation without Authority) and Section 185(2) German Civil Code (BGB – Disposition by Unauthorized Person).”

“4.1. In the further alternative and for adequate consideration, the receipt of which is acknowledged, OSRAM OLED hereby assigns, transfers and conveys to

Pictiva all of OSRAM OLED's right, title and interest in and to the Assigned Patents and the 3rd Amendment Patents and all related rights to the extent stipulated in the PPLEA and the 3rd Amendment.

4.2. Subject to the terms of this Agreement, Pictiva accepts the assignment, transfer and conveyance of the rights as stipulated in this Section 4 of this Agreement."

206 Furthermore, we note that the Plaintiff resulted from a corporate name change ("incorporation on change of name") of the entity previously named in the PPLEA as Dolya Holdco 5 Limited. As evidence, we submit a corresponding certificate of name change from the Irish Companies Registration Office in Dublin dated July 17, 2020, in copy as

– Exhibit PS 23 –

and in German translation as

– Exhibit PS 23a –.

207 The name change was a simple renaming. It is well established that such changes do not affect legal positions.

208 In conclusion, the Plaintiff has active legal standing with respect to all asserted claims.

#### **F. Regarding the Applications**

209 We have amended the application under Section II.1 in order to account for the one-month grace period following the publication date of the patent application with respect to the compensation claim.

210 No further amendment to the application for compensation under Section II.1 is necessary. This applies in particular with regard to the objection raised by the Defendants in para. 17 of the SoD, according to which the assignment of the patent-in-suit to the Plaintiff on October 11, 2023 would require an amendment to the compensation application to reflect that the claim is being asserted based on an assigned right. This is incorrect. The compensation application is worded neutrally and does not rely on factors specific to the person of the patent holder. It is therefore irrelevant for the application whether the compensation claim is asserted based on an assigned right or in the Plaintiff's own right.

### **G. On the Statute of Limitations Defense**

- 211 In para. 18 of the SoD, the Defendant raises the statute of limitations defense with regard to compensation claims that arose up to and including December 31, 2020 (relative limitation), taking into account the absolute ten-year limitation period, or at the very least, for claims that arose before March 7, 2014.
- 212 In its statement of defense, the Defendant has not presented any facts substantiating the statute of limitations defense for the period from March 7, 2020 to December 31, 2020. The statute of limitations is an affirmative defense that must be raised by the Defendant. Accordingly, the Defendant bears the burden of pleading and proving that the requirements for the statute of limitations are met. Where the law provides for varying limitation periods for a specific claim, the Defendant must particularly plead and prove that no grounds exist for a longer limitation period (see BGH, NJW 2016, 2645, para. 42).
- 213 Pursuant to Sections 195 and 199(1) BGB, the standard limitation period for a compensation claim is three years from the end of the year in which the claim arose *and* the creditor had knowledge of the facts giving rise to the claim and the identity of the debtor, or would have had such knowledge but for gross negligence (relative limitation). Irrespective of such knowledge or grossly negligent lack of knowledge, compensation claims are time-barred ten years from their accrual under Section 199(3) no. 1 BGB (absolute limitation).
- 214 The start of the three-year limitation period therefore crucially depends on the creditor's knowledge or grossly negligent lack of knowledge of the facts giving rise to the claim and of the Defendant as debtor. The Defendant has submitted no arguments in this regard.
- 215 Furthermore, it is denied, purely as a precaution, that the Plaintiff or the previous holders of the patent-in-suit or the application for the patent-in-suit had knowledge, at a time relevant to limitation, of the facts constituting the patent infringement. As already stated in the complaint, the existence of a patent infringement can only be determined and demonstrated by means of a thorough analysis of the infringing embodiment using so-called time-of-flight secondary ion mass spectrometry. It therefore cannot be assumed that the Plaintiff or its legal predecessors closed their eyes to such knowledge in relation to the patent-in-suit, thereby grossly neglecting the diligence required in commercial dealings. A failure to monitor the market would in any case not suffice to establish grossly negligent lack of knowledge (see Higher Regional Court of Karlsruhe, GRUR-RS 2016, 21121 – Advanced System).
- 216 For the period prior to March 7, 2014, the Plaintiff is at least entitled to a residual damages claim pursuant to Section 33(3) sentence 2 PatG in conjunction with Section 852 BGB.

## **H. Injunction Claim Is Proportionate and Justified**

- 217 Furthermore, the claim for injunctive relief is not excluded under Section 139(1) sentence 3 PatG on the grounds of disproportionality, because enforcement would not – as the Defendants argue – result in undue hardship due to the particular circumstances of the individual case and the principles of good faith.
- 218 The objection of disproportionality under Section 139(1) sentence 3 PatG is an exceptional provision and must be interpreted narrowly. According to the explanatory memorandum to the law, the objection is limited to “particularly exceptional cases” (see Bundestag printed matter (BT-Drs.) 19/25821, pp. 31, 52, and 53). No such particularly exceptional case is present here.
- 219 In order to assert the disproportionality defense, the Defendants would have to allege and, if necessary, prove that:
- the “enforcement” would result in a “hardship” for the infringer or for third parties,
  - the hardship is “not justified” by the exclusive right,
  - the hardship is “disproportionate,”
  - these evaluations arise from the “specific circumstances” of the individual “case” at issue, and
  - they result from the “principle of good faith” (Section 242 BGB).
- 220 The Defendants have not adequately substantiated any of the above requirements. Their submissions consist merely of rudimentary assertions regarding cross-manufacturer or cross-product figures on smartphone sales in Germany, average sales prices, alleged cross-product profit margins, and alleged market shares. In particular, their submissions do not reveal what specific disadvantages the Defendants would face from an injunction judgment in light of the infringing embodiment, nor what impact such a judgment would have on the Defendants’ business operations.
- 221 If, however, these requirements were nevertheless found to be met to the satisfaction of the Court, the legal consequence is that the claim for injunctive relief is excluded “to the extent” that the conditions are satisfied. The legislature thus envisages the possibility of a partial exclusion of the sought injunction; for example, the patent infringer may be granted a reasonable transition period to develop a non-infringing alternative (see BT-Drs. 19/25821, p. 55). This is, as a milder interference with the exclusive right of the patent holder, generally to be preferred. The Defendants must in particular demonstrate why such a milder interference would not adequately account for their interests. The Defendants have not provided any submissions on this matter.

- 222 The relevant considerations from the government draft (BT-Drs. 19/25821, p. 31; emphasis added) underscore the exceptional nature of Section 139(1) sentence 3 PatG:

“(b) Clarification of the Regulation on the Claim for Injunction (Section 139 of the Patent Act and Section 24 of the Utility Model Act)

Current patent law provides that the injured party has a claim for injunctive relief against the infringer in the event of patent infringement. However, according to the decision of the Federal Court of Justice (BGH, GRUR 2016, 1031 – *Wärmetauscher* [*Heat exchanger*]), a judicial injunction must not be granted where enforcement of the patent holder’s claim for injunctive relief – taking into account his interests – would result in disproportionate hardship for the infringer and would therefore be contrary to good faith. The legal framework under German law **already** allows for an examination of the proportionality of injunctive relief in cases of patent infringement.

However, the lower courts have thus far taken a very cautious approach to this possibility. This has, in isolated cases, led to situations where the economic consequences of a judicial injunction clearly exceeded the degree necessary to ensure sufficient deterrent effect.

Against this background, it seems appropriate to **expressly clarify** in Section 139(1) PatG – consistent with Article 3(2) of Directive 2004/48/EC – that the enforcement of injunctive relief may, in **exceptional** cases, be disproportionate.

However, the explicit inclusion of the principle of proportionality in Section 139 PatG **must not lead to an erosion of patent law**. A continued strong right to injunctive relief remains indispensable for the enforcement of patents by German industry. **The limitation of the injunctive relief** is therefore to remain – **as reflected in the case law of the BGH – restricted to particularly exceptional cases.**”

- 223 In summary, the legislature has undertaken to “clarify” the line established by the BGH in the *Wärmetauscher* decision (see also *ibid.*, p. 41, para. 3: “as this merely constitutes a legislative clarification,” and p. 52: “This constitutes a legislative clarification.”). The impetus for this was the legislature’s observation that the lower courts had hitherto only very cautiously applied this BGH line. Though perhaps not doctrinally unambiguous, the legislature also touches on the “sufficient deterrent effect” that it attributes to an injunction title. On p. 53 (*ibid.*; emphasis added), the legislature states:

“The claim for injunctive relief remains the **standard corrective** of the patent law system in the event of patent infringement. Accordingly, the assertion of a claim for injunctive relief by the Plaintiff **generally does not require a demonstration of proportionality**. Likewise, the courts will not be unduly burdened by the proposed legislative clarification. The burden of alleging and proving disproportionality in enforcement lies with the patent infringer, and doubts weigh against him. Therefore, a corresponding submission by the Plaintiff is only required if the patent infringer

presents substantial grounds for an exceptional limitation of the claim for injunctive relief.

The proposed addition to Section 139 PatG makes clear that in such a case, an assessment of the overall circumstances of the individual case and a careful weighing of all factors – including the principle of good faith and the **generally overriding interests of the injured party** in enforcing his claim for injunctive relief – is required. **A restriction of the claim for injunctive relief is therefore only to be considered in particularly exceptional cases.** The draft deliberately refrains from proposing specific criteria or model cases for the exceptional restriction of injunctive relief with regard to the principle of proportionality, as the wide variety of possible cases makes this inappropriate. A number of considerations may be relevant to the question of disproportionality in seeking injunctive relief, and there may also be interactions between them.”

- 224 As a side note – something not considered in the legislature’s somewhat rudimentary reasoning – it should be noted that the patent system’s incentive and reward function is also fulfilled when an inventor receives amortization in the form of a purchase price that a third party pays for the patent. This is often the only possibility for the inventor, especially when they cannot or do not wish to enforce their right against large global infringers (sometimes referred to as “happy infringers”). As practice shows, this applies not only to the often-cited individual inventors or universities but also to established technology companies that, for reasons of corporate policy and commercial dependency, cannot afford to challenge the industry’s major players. Samsung is one such major player. Conversely, no company operating in a long-established technology market can expect to use protected inventions free of charge for its own financial benefit. An emotive perspective is misplaced here.

### **I. Legitimate Interest of the Plaintiff**

- 225 The fact that the Plaintiff is a patent exploitation company is irrelevant in this context. Entitlement to assert claims depends solely on patent ownership. Ownership of a patent does not impose an obligation to use it (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed., Chapter D, para. 562). Patent exploitation companies are therefore full-fledged intellectual property right holders (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed., Chapter D, para. 644).

226 This is particularly clear from the explanatory memorandum to the legislation. On page 53 of BT-Drs. 19/25821, it states:

“The mere fact that the injured party does not use the patent himself through his own or licensed production is, however, not sufficient for granting a transition or sell-off period; **such a scenario alone is therefore not necessarily to be considered to the detriment of the injured party.**”

“It must [...] be taken into account that the claim to injunctive relief generally **requires neither actual use of the patent by the injured party** nor culpable use by the patent infringer.”

## II. Alternatives and Complex Product

227 Moreover, the Defendants are not deserving of protection, as there are numerous non-patented alternatives involving a different, i.e., non-infringing configuration of the OLED display used in the infringing embodiment (cf. *Grabinski/Zülch/Tochtermann* in Benkard, Patentgesetz [Patent Act], 12th ed. 2023, Section 139 PatG para. 32h).

228 Wherever the infringer can reasonably be expected to avert the hardship threatening him through his own initiative, he must take action (cf. *Kühnen*, Handbuch, op. cit., Chapter D, para. 649).

229 The Regional Court of Munich I (GRUR-RS 2020, 31319 para. 72) may also be cited in this regard:

“The infringer must take possible and reasonable precautions to avoid infringing the patent and must adhere to them. He must also seek a license as early as possible and, at the latest upon receiving a notice of infringement, begin preparing for an adaptation in case he is ordered to cease and desist, because he cannot expect to be granted time for this after the judgment is delivered (cf. *Werner*, in: Busse, Patentgesetz, 9th ed., 2020, Section 139 paras. 91 f., with further references – publication forthcoming). These principles are unlikely to change under the legislative draft for amending Section 139 PatG introduced by the Federal Ministry of Justice and Consumer Protection cited by the Defendant.”

230 Although the infringing embodiment may, in principle, constitute a complex product, the OLED display is not merely a subordinate component of an overall complex product. Rather, it constitutes an essential part of a smartphone, as all functions of the infringing embodiment are operated via the OLED display (cf. *Kühnen*, Handbuch der Patentverletzung, 16th ed., Chapter D, para. 653).

## III. No Disproportionate Economic Impact

231 Even the unsubstantiated reference by the Defendants (see paras. 241 et seq. below) to potential enforcement damages of at least EUR 2 billion or EUR 1.33 billion in the event of

a judgment does not render the claim for injunctive relief disproportionate. Even assuming that such enforcement damages (which are denied for lack of knowledge – see below) were to materialize, they would not have disproportionate economic effects on the Defendants’ overall operations (cf. BGH, Judgment of 05/10/2016 – X ZR 114/13, GRUR 2016, 1031 para. 52). The Defendants’ corporate group is a conglomerate offering products and services in areas including electronics, finance, mechanical engineering, and heavy industry (see <https://de.wikipedia.org/wiki/Samsung>). The electronics division is among the largest electronics companies in the world (see [https://de.wikipedia.org/wiki/Samsung\\_Electronics](https://de.wikipedia.org/wiki/Samsung_Electronics)). In 2023 alone, the electronics division of the Samsung group generated revenue exceeding USD 198 billion and profits of nearly USD 12 billion, as shown in the income statement of Samsung Electronics Co., Ltd. (emphasis added):

| Samsung Electronics Co., Ltd. and its subsidiaries                         |        |                                  |                    |                   |                   |
|----------------------------------------------------------------------------|--------|----------------------------------|--------------------|-------------------|-------------------|
| CONSOLIDATED STATEMENTS OF PROFIT OR LOSS                                  |        |                                  |                    |                   |                   |
| <i>(In millions of Korean won, in thousands of US dollars (Note 2.18))</i> |        |                                  |                    |                   |                   |
|                                                                            | Notes  | For the years ended December 31, |                    |                   |                   |
|                                                                            |        | 2023                             | 2022               | 2023              | 2022              |
|                                                                            |        | KRW                              | KRW                | USD               | USD               |
| <b>Revenue</b>                                                             | 29     | 258,935,494                      | 302,231,360        | 198,247,859       | 231,396,319       |
| <b>Cost of sales</b>                                                       | 21     | 180,388,580                      | 190,041,770        | 138,110,266       | 145,501,003       |
| <b>Gross profit</b>                                                        |        | <b>78,546,914</b>                | <b>112,189,590</b> | <b>60,137,593</b> | <b>85,895,316</b> |
| Selling and administrative expenses                                        | 21, 22 | 71,979,938                       | 68,812,960         | 55,109,743        | 52,685,021        |
| <b>Operating profit</b>                                                    | 29     | <b>6,566,976</b>                 | <b>43,376,630</b>  | <b>5,027,850</b>  | <b>33,210,295</b> |
| Other non-operating income                                                 | 23     | 1,180,448                        | 1,962,071          | 903,782           | 1,502,213         |
| Other non-operating expense                                                | 23     | 1,083,327                        | 1,790,176          | 829,424           | 1,370,606         |
| Share of net profit of associates and joint ventures                       | 9      | 887,550                          | 1,090,643          | 679,532           | 835,025           |
| Financial income                                                           | 24     | 16,100,148                       | 20,828,995         | 12,326,699        | 15,947,229        |
| Financial expense                                                          | 24     | 12,645,530                       | 19,027,689         | 9,681,752         | 14,568,101        |
| <b>Profit before income tax</b>                                            |        | <b>11,006,265</b>                | <b>46,440,474</b>  | <b>8,426,687</b>  | <b>35,556,055</b> |
| Income tax benefit                                                         | 25     | (4,480,835)                      | (9,213,603)        | (3,430,646)       | (7,054,178)       |
| <b>Profit for the year</b>                                                 |        | <b>15,487,100</b>                | <b>55,654,077</b>  | <b>11,857,333</b> | <b>42,610,233</b> |

Source: [https://images.samsung.com/is/content/samsung/assets/global/ir/docs/2023\\_con\\_quarter04\\_soi.pdf](https://images.samsung.com/is/content/samsung/assets/global/ir/docs/2023_con_quarter04_soi.pdf)

- 232 Moreover, a judgment granting injunctive relief as formulated in the complaint would not result in a production halt of the infringing embodiment.
- 233 Therefore, it cannot be assumed that an injunction limited to the Federal Republic of Germany concerning products with a specific OLED display would place the Defendants or the Samsung group in any kind of economic hardship.

#### IV. In the Alternative: Compensation Claim

234 Since the compensation claim takes the place of the forward-looking injunctive relief claim, its amount must be calculated on a pre-performance basis. The injured right holder may thus demand compensation for the limited injunction during the accounting period from the very first day of that period (correctly stated by *Ohly/Stierle*, GRUR 2021, 1229 (1234)). This is consistent with the legislative rationale (BT-Drs. 19/25821, p. 55, penultimate paragraph; emphasis added):

“In this way, the compensation claim – if so requested – can, in suitable cases, already be **quantified in the same judgment** in which the injunction claim is (partially) excluded.”

235 The statutory wording makes clear that the Plaintiff receives a financial equivalent for the loss of rights in exchange for the denial of injunctive relief (cf. *Kühnen*, Handbuch, op. cit., Chapter D, para. 676). This means that the court hearing the infringement case must determine and (if so requested) award a specific monetary amount as the surrogate for the denied injunction claim. *Kühnen* rightly refers to the close temporal connection, as indicated in the statutory text, between denial of the injunction and the award of compensation. The court’s task in the infringement proceedings is thus to determine the amount that constitutes the “purchase price” for the Defendants’ (temporarily continued) freedom to use the patent and award that amount to the Plaintiff pursuant to its main or alternative monetary request (Section 308 ZPO).

236 The law does not specify how to implement the new provisions of sentences 3 and 4 of Section 139(1) PatG procedurally. The legislature appears not to have addressed this question. Given that the injunction automatically and immediately converts into a compensation claim when a judgment finds that an injunction is excluded under Section 139(1), sentence 3 PatG, the compensation claim must take effect from the very first day. Likewise, effective implementation of the legislative intent requires that the compensation claim be immediately enforceable, and without provision of security. A mere declaratory judgment recognizing the compensation claim in principle would lack the necessary effectiveness. Accordingly, courts will be compelled to award a specific compensation amount. For this reason, the Defendants must submit a calculation proposal, which the Plaintiff can comment on and which will serve as the court’s basis for assessing the plausibility of the compensation amount and adjusting it if necessary. As will be shown below, the Defendants have failed to do so.

237 According to the recommendation and report of the Legal Affairs and Consumer Protection Committee (BT-Drs. 19/30498, p. 61):

“[...] at least the amount that would be considered appropriate remuneration in the case of a contractual grant of rights [...]”

238 Depending on the individual circumstances, even higher compensation may be appropriate – particularly if the infringer failed to examine the patent situation with the required due diligence beforehand (cf. *ibid.*). In this regard, there is much to suggest that the Defendants have a duty to provide information about the time required and expected extent of use, as well as revenue, so that the court can make an estimate under Section 287 ZPO. Given the forward-looking nature of the claim, the Defendants’ profit during the relevant period may also – if necessary, on an estimated basis – be factored in. The less specific and comprehensive the Defendants’ submissions on these factors are, the greater the court’s discretion in determining the amount.

239 As *Hoffmann* explains in his article in GRUR 2022, 286, titled “Der Ausgleichsanspruch im Patentrecht – Die leistungsgerechte Monetarisierung eines Drohpotenzials” [The Compensation Claim in Patent Law – Performance-Based Monetization of a Threat Potential], the amount calculated based on established principles for compulsory license fees represents the minimum for a compensation claim under Section 139(1) sentence 4 PatG. However, this minimum must be increased by the deterrent factor intended by the legislature (cf. *Hoffmann*, *ibid.*, p. 290, Section IV):

“Perfection is not required. It is sufficient to set the increase at a level that makes it, from a rational perspective, a mistake for a potential patent user to conduct inadequate searches or to forego contacting identified patent holders for a license – thereby risking a higher compensation payment – even if injunctive relief is excluded, at least temporarily, due to disproportionality.”

240 This supports a significant upward adjustment in the case of a particularly powerful and financially resilient company such as the Defendants.

## **I. On Enforcement Security**

241 The Defendants’ statements concerning the amount of enforcement security (paras. 186 et seq. of the SoD) are not convincing. The Defendants have not explained what specific damage would causally threaten them if, as a result of a judgment, they could no longer offer and distribute the infringing embodiment on the German market.

242 To justify a higher amount of enforcement security, the Defendants refer in paras. 186 et seq. of their statement of defense to purported – and from the Plaintiff’s perspective, incomprehensible – cross-manufacturer and cross-product figures from internet databases such as Statista, Statcounter, and YCharts. They claim that all smartphone manufacturers together sold 19.7 million smartphones in Germany in 2023. Without any supporting evidence, the Defendants assume an average selling price of EUR 800 per smartphone, a (cross-product) profit margin of 36%, and a hypothetical market share of approximately 33%.

243 Regarding the profit margin cited by the Defendants, it must first be noted that it relates to the entire product range of the Defendants or the Samsung group globally. In addition to smartphones, the Samsung group produces and sells numerous other products with or without OLED displays essentially identical in function to those protected by the asserted claims of the patent-in-suit, including notebooks, tablets, smartwatches, televisions, audio devices, ultrasound, X-ray, and CT equipment, storage media, monitors, and accessories (see [https://de.wikipedia.org/wiki/Samsung\\_Electronics](https://de.wikipedia.org/wiki/Samsung_Electronics), last accessed September 9, 2024). Moreover, based on the profit and loss account of Samsung Electronics Co., Ltd. cited above in para. 231, the Defendants’ claimed profit margin of 36% is entirely unrealistic. With revenue of approx. EUR 198 billion and profit of approx. EUR 12 billion, the actual profit margin would be significantly lower. Furthermore, while the Defendants claim in para. 194 of the SoD that total enforcement damages would amount to EUR 2 billion (20% of EUR 10 billion), they then apparently demand enforcement security of EUR 2 billion for Defendant 1 and EUR 1.33 billion for Defendant 2 – i.e., a total of EUR 3.33 billion. Thus, the claimed total enforcement damage appears to be double-counted.

244 The Defendants’ calculation is therefore entirely inconsistent and not substantiated with valid data. The figures do not allow any conclusions to be drawn regarding the actual profit margin of the infringing embodiment in Germany.

245 The Defendants’ submissions on enforcement security are therefore entirely speculative. There is no differentiated data on revenue and actual profits achieved or expected to be achieved by the Defendants on the German market with the infringing embodiment. In particular, there is no disclosure of sales figures in Germany. Also lacking is any presentation of past and forecasted future sales figures. Furthermore, the Defendants have not demonstrated how enforcement would negatively impact revenue.

246 Accordingly, it is denied for lack of knowledge that the Defendants face an enforcement damage risk exceeding the amount specified in the complaint—EUR 1 million – as security. The Plaintiff has no access to the Defendants’ business data or the profits generated in Germany with the infringing embodiment or with products containing OLED displays

essentially identical to those protected by the asserted patent claims. Such information is not publicly available.

247 Moreover, there is good reason to set a low amount for security if the claimed damage will almost certainly not occur (cf. Regional Court of Munich I; 7 O 8818/19, GRUR-RS 2020, 22577 para. 246). This is particularly true if it cannot be assumed that the Defendant, even if the Plaintiff successfully pursues preliminary enforcement of claims for injunction, recall, and destruction, would actually cease distributing the affected products and accept the resulting loss of sales and market position. Given the general duty to mitigate damages under Section 254 BGB, it is expected that the Defendants – as rational and economically minded market participants—will avert enforcement by obtaining a license (see Regional Court of Munich I, op. cit., paras. 248–250; see also Regional Court of Munich I, judgment of 10/23/2020 – 21 O 11384/19, GRUR-RS 2020, 50637 para. 277, citing *Ulrici* in: BeckOK/ZPO [Beck Online Commentary on the Code of Civil Procedure], 52nd ed., as of 03/01/2024, Section 717 para. 16 and BGH NJW 1997, 2601, 2603).

## **J. Summary**

The Defendants' objections – which, regarding the dependent method claim, are based on a misinterpretation of what constitutes a direct product of a method under Section 9, sentence 3 PatG – do not hold. From the arguments presented in both the statement of defense and the nullity action, it follows that the subject matter (product and method) is valid and infringed under the new main claim.

*Electronically signed via beA*

Dr. Thomas Adam  
Attorney

Exhibits: PS 13 – 23a