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# Datasheet for the decision of 22 March 2023

**Case Number:** T 2766/19 - 3.3.09

**Application Number:** 14165200.8

**Publication Number:** 2933852

**IPC:** H01L51/54

**Language of the proceedings:** EN

**Title of invention:**
Phosphorescent OLED and hole transporting materials for phosphorescent OLEDs

**Patent Proprietor:**
Novaled GmbH

**Opponent:**
Merck Patent GmbH

**Headword:**
Phosphorescent OLED/NOVALED

**Relevant legal provisions:**
EPC Art. 56, 83, 84, 123(2)
RPBA Art. 12(4)

**Keyword:**
Auxiliary request 2:
Added subject matter - (no)
Clarity, sufficiency of disclosure, inventive step - (yes)

**Decisions cited:**
T 2117/18

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

**Boards of Appeal**

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**Case Number: T 2766/19 - 3.3.09**

# D E C I S I O N
# of Technical Board of Appeal 3.3.09
# of 22 March 2023

| | |
|---|---|
| **Appellant:** (Patent Proprietor) | Novaled GmbH<br>Elisabeth-Boer-Strasse 9<br>01099 Dresden (DE) |
| **Representative:** | Bittner, Thomas L.<br>Boehmert & Boehmert<br>Anwaltspartnerschaft mbB<br>Pettenkoferstrasse 22<br>80336 München (DE) |
| **Appellant:** (Opponent) | Merck Patent GmbH<br>Frankfurter Strasse 250<br>64293 Darmstadt (DE) |
| **Decision under appeal:** | **Interlocutory decision of the Opposition Division of the European Patent Office posted on 12 August 2019 concerning maintenance of the European Patent No. 2933852 in amended form.** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | A. Haderlein |
| **Members:** | A. Veronese |
| | N. Obrovski |

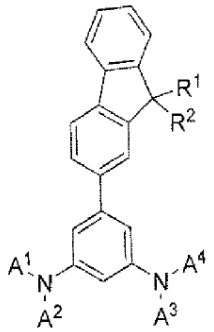
## Summary of Facts and Submissions

I. The opponent and the patent proprietor filed appeals against the opposition division's decision finding that the European patent as amended according to auxiliary request 3 filed during the oral proceedings before the opposition division met the requirements of the EPC. Since both parties filed an appeal, the appellants are referred to as the proprietor and the opponent, respectively.

II. With its notice of opposition the opponent requested revocation of the patent in its entirety on the grounds under Article 100(a) (lack of novelty and lack of inventive step) and 100(b) EPC.

III. Claims 1 and 10 of the patent as granted read:

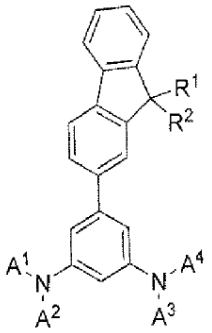
"*1. Organic light emitting device comprising between anode and cathode at least one emitting layer comprising a phosphorescent emitter and at least one hole transporting and/or electron blocking layer comprising a compound represented by general formula (I):*




*wherein $R^1$ and $R^2$ can be independently selected from hydrogen, $C_1$-$C_{20}$ alkyl or $C_3$-$C_{20}$ cycloalkyl, $C_7$-$C_{20}$ arylalkyl, $C_6$-$C_{12}$ aryl,*

*$A^1$, $A^2$, $A^3$ and $A^4$ are independently selected from $C_6$-$C_{20}$ aryl, and the substituents in any of the pairs $R^1$ and $R^2$, $A^1$ and $A^2$, $A^3$ and $A^4$ may be linked so that they form a ring.*"

"*10. Compound represented by general formula (I):*




*wherein $R^1$ and $R^2$ can be independently selected from hydrogen, $C_1$-$C_{20}$ alkyl or $C_3$-$C_{20}$ cycloalkyl, $C_7$-$C_{20}$ arylalkyl, $C_6$-$C_{12}$ aryl,*
*$A^1$, $A^2$, $A^3$ and $A^4$ are independently selected from $C_6$-$C_{20}$ aryl, and the substituents in any of the pairs $R^1$ and $R^2$, $A^1$ and $A^2$, $A^3$ and $A^4$ may be linked so that they form a ring.*"

IV. The documents submitted during the opposition proceedings included:

D1: CN 101088992 and machine translation thereof
D2: KR 10-2011-0100877 and machine translation thereof
D3: Highly Efficient OLEDs with Phosphorescent Materials, edited by H. Yersin, 2008, Wiley-VCH Verlag, Weinheim, bibliography and pp. 1-3
D5: US 2008/0124573 A1
D6: JP 3824385 B2 and machine translation thereof
D7: US 2012/0217 492 A1

V. The opposition division found *inter alia* that:

- the subject-matter of claim 10 of the patent as granted and of auxiliary request 1 lacked novelty over D2

- claim 10 of auxiliary request 2 contained added subject-matter

- the claims of auxiliary request 3 did not extend beyond the content of the application as filed; the claimed subject-matter was not open to clarity objections, was sufficiently disclosed and involved an inventive step over D5, D6 and D7, whether alone or in combination

VI. With its statement setting out the grounds of appeal, the proprietor filed auxiliary requests 1 to 6. Furthermore, it filed the following documents:

E1: Experimental Report relating to tests conducted by the proprietor
E2: T. Shizuo et al., Electrochemistry, 2008, Vol. 1(76), pp. 24-31
E3: WO 01/93642 A1

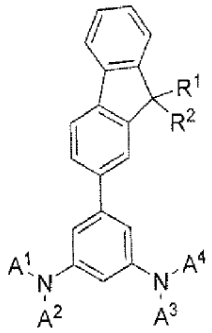
VII. With its reply to the proprietor's statement setting out the grounds of appeal, the opponent filed the following document:

D12: EP 0 455 247 A2

VIII. During the oral proceedings held before the board, the proprietor withdrew its main request and auxiliary request 1.

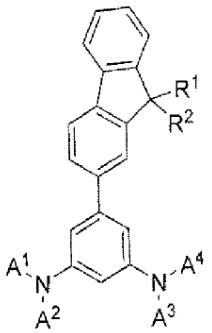
IX. Claims 1 and 10 of auxiliary request 2 differ from those of the main request in that the wording "in any of the pairs" and the reference to the substituents $A^1$, $A^2$, $A^3$ and $A^4$ have been deleted. These claims read as follows (marked-up version):

"*1. Organic light emitting device comprising between anode and cathode at least one emitting layer comprising a phosphorescent emitter and at least one hole transporting and/or electron blocking layer comprising a compound represented by general formula (I):*



*wherein $R^1$ and $R^2$ can be independently selected from hydrogen, $C_1$-$C_{20}$ alkyl or $C_3$-$C_{20}$ cycloalkyl, $C_7$-$C_{20}$ arylalkyl, $C_6$-$C_{12}$ aryl,*
*$A^1$, $A^2$, $A^3$ and $A^4$ are independently selected from $C_6$-$C_{20}$ aryl, and the substituents ~~in any of the pairs~~ $R^1$ and $R^2$~~, $A^1$ and $A^2$, $A^3$ and $A^4$~~ may be linked so that they form a ring.*"

"*10. Compound represented by general formula (I):*



*wherein $R^1$ and $R^2$ can be independently selected from hydrogen, $C_1$-$C_{20}$ alkyl or $C_3$-$C_{20}$ cycloalkyl, $C_7$-$C_{20}$ arylalkyl, $C_6$-$C_{12}$ aryl,*
*$A^1$, $A^2$, $A^3$ and $A^4$ are independently selected from $C_6$-$C_{20}$ aryl, and the substituents ~~in any of the pairs~~ $R^1$ and $R^2$~~, $A^1$ and $A^2$, $A^3$ and $A^4$~~ may be linked so that they form a ring.*"

X. The **proprietor's arguments** relevant for the decision can be summarised as follows:

- In the claims of the patent as granted and in the application as filed, $R^1$, $R^2$ and $A^1$ to $A^4$ were, themselves, the "substituents in any of the pairs ..."; the deletion of the wording "in any of the pairs" and of the residues $A^1$ to $A^4$ in claims 1 and 10 of auxiliary request 2 did not change the claim interpretation and did not result in a lack of clarity. These amendments did not create originally undisclosed subject-matter either.

- The claimed invention was sufficiently disclosed; the objections raised could, at most, relate to clarity issues.

- The subject-matter claimed in auxiliary request 2 involved an inventive step starting from any of the cited prior art documents and in particular starting from D5 or D7 as the closest prior art.

- Document D12 and the inventive step attack based on it should not be admitted.

XI. The **opponent's arguments** may be summarised as follows:

- The deletion of the wording "in any of the pairs" in claim 1 of auxiliary request 2 resulted in a lack of clarity because it was not clear whether rings were formed by direct linkage of $R^1$, $R^2$ and $A^1$ to $A^4$ or through other undefined substituents.

- The "substituents" in the claims of the application as filed were substituents attached to the groups $R^1$, $R^2$ and $A^1$ to $A^4$; rings could only be formed through these substituents. Conversely, according to claim 1 of auxiliary request 2, rings could also be formed by direct linkage of the groups $R^1$, $R^2$, and $A^1$ to $A^4$, so new subject-matter had been created.

- The claimed invention was insufficiently disclosed because the nature of the claimed "substituents" was undefined, leaving serious doubts that the invention could be carried out over the relevant scope.

- The claimed subject-matter of auxiliary request 2 lacked an inventive step over D5 combined with D6, over D7 combined with D5, over D1 combined with D3, over D2 and over D12 combined with D5.

**Final requests**

XII. The proprietor requested that the decision under appeal be set aside and that the patent be maintained on the basis of auxiliary request 2 filed with the statement setting out the grounds of appeal.

XIII. The opponent requested that the decision under appeal be set aside and that the patent be revoked.

## Reasons for the Decision

### Auxiliary request 2

1. Since the main request and auxiliary request 1 were withdrawn, auxiliary request 2 is the only relevant request.

2. *Clarity*

2.1 According to the opponent, the deletion of the wording "in any of the pairs" and of the residues $A^1$ to $A^4$ from claim 1 as granted rendered the claimed subject-matter unclear because the amended claim was open to two different interpretations: one in which the remaining substituents $R^1$ and $R^2$ could be directly linked to form a ring and another in which $R^1$ and $R^2$ could be linked through a further undefined substituent to form a ring.

2.2 This argument is not convincing. The skilled person reading claim 1 as granted would understand that the "substituents in any of the pairs $R^1$ and $R^2$, $A^1$ and $A^2$, $A^3$ and $A^4$" are the members of those pairs themselves, i.e. $R^1$, $R^2$, $A^1$, $A^2$, $A^3$ and $A^4$. This means that the rings mentioned in claim 1 as granted are those directly formed between $R^1$ and $R^2$, between $A^1$ and $A^2$, and between $A^3$ and $A^4$, respectively. Thus, there are no additional, undefined substituents bridging the members of the pairs. The opponent has drawn attention to paragraph [0014] of the description, which mentions the possible presence of further substituents. However, those further substituents are not those mentioned in claim 1 as granted. In fact, both paragraph [0014] and paragraph [0015] of the description identify $R^1$, $R^2$, $A^1$, $A^2$, $A^3$ and $A^4$, as such, as "substituents".

2.3 The deletion of the wording "in any of the pairs" and of the substituents $A^1$ to $A^4$ from claim 1 as granted does not change the meaning of this claim, nor does it result in a lack of clarity. Amended claim 1 still refers to $R^1$ and $R^2$ as the "substituents" – and actually does so even more explicitly. Thus, like in claim 1 as granted, the rings mentioned in amended claim 1 are those formed by direct linkage of substituents $R^1$ and $R^2$ and not of other, undefined substituents which are attached to $R^1$ and $R^2$.

2.4 Furthermore, as argued by the proprietor, a claim interpretation envisaging the presence of further, undefined substituents attached to the substituents $R^1$ and $R^2$ would undermine the meaning and the purpose of the Markush formula in claim 1.

2.5 For these reasons, the amendments to claim 1 of auxiliary request 2 do not render the claimed subject-matter unclear. The same applies to claim 10, which contains the same amendments (Article 84 EPC).

3. *Amendments*

3.1 The opponent argued that claim 1 contained subject-matter extending beyond the content of the application as filed.

3.2 In its opinion, the wording "the substituents in any of the pairs $R^1$ and $R^2$, $A^1$ and $A^2$, $A^3$ and $A^4$ may be linked so that they form a ring" in claim 1 as filed implied that only substituents attached to $R^1$ and $R^2$ could be linked together to form a ring, not $R^1$ and $R^2$ as such. Deleting the wording "the substituents in any of the pairs" allowed $R^1$ and $R^2$ to be linked together to form a ring, rather than through additional intermediate

substituents. This embodiment was not disclosed in the application as filed.

3.3 This argument is not persuasive. The wording in claim 1 as filed corresponds to that used in claim 1 as granted. As already discussed above when dealing with clarity, this wording means that the rings are those formed between $R^1$ and $R^2$, between $A^1$ and $A^2$, and between $A^3$ and $A^4$, respectively.

3.4 The first paragraphs of page 4 as originally filed, which correspond to paragraph [0014], mentioned above when discussing clarity, confirm that $R^1$ and $R^2$ are, as such, "substituents" and provide a further basis for amended claim 1.

3.5 Thus, despite the amendment, claim 1 does not define different, originally undisclosed ring structures. Deleting the substituents $A^1$ to $A^4$ limits the scope of the claim to originally disclosed embodiments, and doing so does not create any new subject-matter either.

3.6 For these reasons, claim 1 does not contain subject-matter extending beyond the content of the application as originally filed. The same applies to claim 10, which contains the same amendments (Article 123(2) EPC).

4. *Sufficiency of disclosure*

4.1 The opposition division concluded that the claimed invention was sufficiently disclosed.

4.2 In its reply to the proprietor's statement setting out the grounds of appeal, the opponent disputed this conclusion, arguing that the structure of the claimed

"substituents" was not defined, leaving "serious doubts that the invention could be carried out in a relevant scope". In this context, the opponent generically referred to its earlier submissions presented in the notice of opposition.

4.3 The opponent's arguments are not convincing. The structure of the "substituents" $R^1$ and $R^2$ is defined in the claims. The patent teaches how to synthesise compounds of formula (I), and the preparation of ten specific example compounds is described in detail; see paragraphs [0029] to [0053]. These ten compounds were successfully tested in organic light emitting devices according to the invention; see paragraphs [0054] to [0060]. There are no serious doubts substantiated by verifiable facts that compounds having the claimed structure are unsuitable for preparing the claimed light emitting devices.

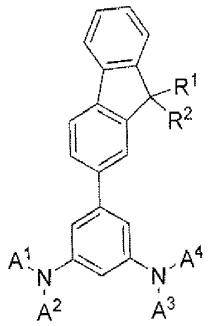
4.4 Accordingly, there is no reason to believe that a skilled person relying on the teaching of the patent and common general knowledge would be unable to carry out the invention. Furthermore, generic references to arguments presented in the notice of opposition cannot be considered to address the opposition division's decision (see T 2117/18, Reasons 2.2.13).

4.5 For these reasons, the claimed subject-matter is sufficiently disclosed (Article 83 EPC).

5. *Inventive step*

5.1 The invention on which the opposed patent is based relates to a phosphorescent organic light emitting device and to a compound which can be used as a hole transporting and/or electron blocking layer in such a

device. The relevant compound having formula (I) is defined in claim 10. The device, which comprises that compound, is defined in claim 1. The compound of formula (I) comprises the following central scaffold:




Formula (I)

5.2 The opposition division considered that the claimed subject-matter involved an inventive step over the combinations of D7 with D5 and of D5 with D6. On appeal, the opponent disputed these conclusions and raised further objections relying on D2 and on the combinations of D12 with D5 and of D1 with D3.

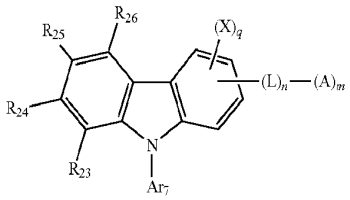
5.3 The opponent formulated its inventive step attacks separately for claim 1, directed to the compound, and for claim 10, directed to the device. However, since the invention is aimed at preparing a light emitting device, and this device is characterised essentially by the presence of a compound of formula (I), the same inventive step analysis applies to both claim 1 and claim 10.

*D7 as the starting point*

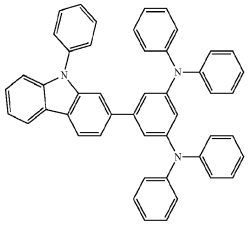
5.4 D7 discloses a light emitting device which can contain a phosphorescent emitter and a compound similar to that claimed, having hole transporting properties; see paragraphs [0003], [0009], [0058], [0063] and [0189],

and the Markush formula 8 shown in paragraph [0037] and in claim 7:

<Formula 8>



and see in particular the compound 5-C2 on page 49, having the formula:



5-C2

5.5 Since D7, like the opposed patent, relates to a phosphorescent organic light emitting device comprising a compound having hole transporting properties similar to the claimed compound of formula (I), D7 can be considered the closest prior art, as in the opposition division's decision.

*Distinguishing feature and technical effect*

5.6 The compound claimed in the opposed patent differs from the compounds of D7, e.g. from compound 5-C2, in that it contains a carbazolyl rather than a fluorenyl group.

5.7 According to the proprietor, the patent teaches that this difference results in improved efficiency and a reduced operational voltage of phosphorescent organic light emitting devices comprising these compounds.

5.8 This argument is not persuasive because the properties of the claimed compounds were not compared with those

of the compounds disclosed in D7, e.g. compound 5-C2. The compounds H1, H2 and TCA used to conduct the comparative tests in the opposed patent in fact differ substantially from those in D7.

5.9 Furthermore, the tests filed by the opponents with its letter of 22 August 2018 (D8b) show that the aforementioned difference in structure is not associated with a technical effect: phosphorescent OLEDs prepared using a fluorenyl compound according to the invention (HTM-SP) and the carbazolyl compound 5-C2 of D7 (also known as HTM-D7) in fact have a similar operational voltage and efficiency.

*Technical problem addressed*

5.10 Absent any evidence of an effect resulting from the distinguishing feature, the technical problem addressed has to be formulated as providing a) an alternative compound having hole transporting and/or electron blocking properties suitable for use in a phosphorescent organic light emitting device and b) an alternative phosphorescent organic light emitting device.

5.11 The tests in the patent show that compounds of formula (I) are suitable as hole transporting and/or electron blocking agents in phosphorescent organic light emitting devices. Furthermore, they show that OLEDs having high efficiency and a low operational voltage could be prepared using these compounds; see paragraphs [0058] and [0059] of the patent. These results make it credible that the problem addressed has been solved.

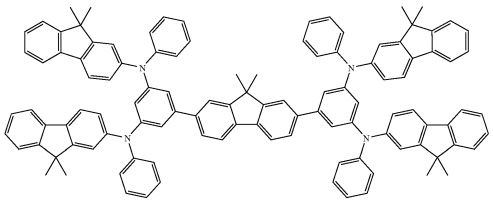
5.12 The opponent argued that it was not credible that all the compounds encompassed by formula (I) were suitable for preparing the claimed device.

5.13 This argument is not persuasive. The tests in the patent show that compounds having the claimed central 1,3-diaminophenyl-9H-fluoren-2-yl scaffold have the desired properties. The opponent has not presented any technical evidence, or any technical reason to believe, that there are compounds having this scaffold which would not be suitable for preparing the claimed device. The opponent has merely raised some doubts without substantiating its assertions.

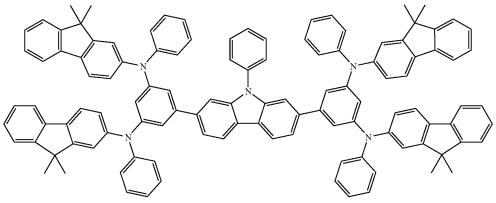
*Non-obviousness of the claimed solution*

5.14 The relevant question is whether the skilled person, starting from D7 and faced with the stated problem, would have considered providing alternative compounds replacing the central carbazolyl scaffold that characterises the compounds of D7 with a fluorenyl scaffold, as well as phosphorescent light emitting devices comprising those compounds.

5.15 The opponent argued that D5 taught the skilled person that compounds having the central fluorenyl scaffold of the claimed compounds or a corresponding carbazolyl scaffold were equivalent, in terms of hole transporting properties, in light emitting devices. It noted that D5 disclosed both types of compounds for preparing such devices; see e.g. the fluorenyl compound 5 and the corresponding carbazolyl derivative 7 disclosed in D5.



Compound 5

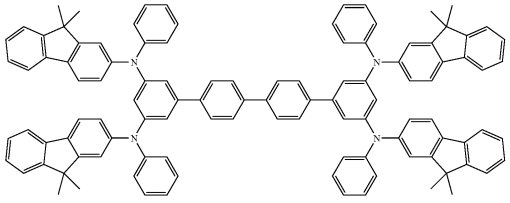


Compound 7

5.16 Therefore, according to the opponent, the skilled person would have considered replacing the carbazolyl group with a fluorenyl group.

5.17 This argument is not convincing.

5.18 As noted by the proprietor, D5 does not provide any evidence that compounds 5 and 7 have the same properties in phosphorescent devices. Firstly, the tests in D5 were only conducted in devices comprising a fluorescent emitter; no phosphorescent emitter was tested. Furthermore, compound 5 was compared with compound 41 rather than with compound 7. Compound 41 contains a central biphenyl rather than a fluorenyl scaffold.



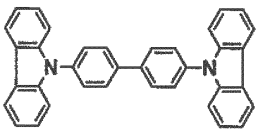
Compound 41

5.19 Moreover, although they appear to be similar to each other, compounds 5 and 7 of D5 differ significantly from the claimed compounds. The central scaffold is in

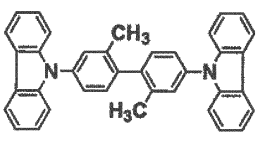
fact di-substituted rather than mono-substituted; compare compounds 5 and 7 with the compounds of the claimed formula (I). Consequently, the overall structure is substantially different.

5.20 The proprietor's computations shown in E1 make it credible that the properties of mono-substituted fluorenyl compounds according to the invention can substantially differ from those of the di-substituted compounds of D5. As noted by the proprietor, the energy of the first triplet state T1 of the mono-substituted compounds is at least 0.1 eV higher than that of corresponding di-substituted compounds. There is no evidence that the computations are incorrect and unsuitable for estimating the properties of the relevant compounds.

5.21 Due to the different symmetry and size, these compounds can be expected to have different HOMO and LUMO energy levels and triplet states, as already mentioned by the opposition division. E2 confirms that a very small modification in the central scaffold of an organic molecule (CBP compared to CDBP) may cause changes in the levels of its triplet state (e.g. of 0.1 eV) and that this change may significantly affect the quantum efficiency of an OLED.




CBP




CDBP

5.22 Similar results are mentioned in E3 after the properties of the claimed compounds are compared with those of the reference compound TCTA in the opposed patent.

5.23 Thus, any teaching relating to the di-substituted compounds of D5 cannot be transposed to the mono-substituted compounds of the invention, let alone as far as phosphorescent light emitting devices are concerned.

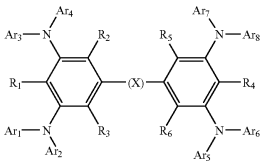
5.24 For these reasons, even taking into account the teaching of D5, the skilled person would not reasonably expect that the properties of the mono-substituted compounds of D7 could be maintained when replacing a carbazolyl group in the central scaffold with a fluorenyl group, particularly in phosphorescent organic light emitting devices. Furthermore, as noted by the proprietor, the relevant compounds of D7 were only tested in a fluorescent device rather than in a phosphorescent organic light emitting device.

5.25 For these reasons, the skilled person would not have considered replacing the compounds of D7 with those claimed of formula (I). Therefore, as already decided by the opposition division for essentially the same compound, the claimed subject-matter involves an inventive step over a combination of D7 with D5.

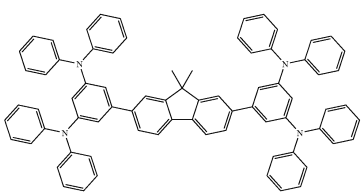
*D5 as the starting point*

5.26 D5 discloses light emitting devices which can contain a phosphorescent emitter. The devices comprise compounds similar to those claimed, which can act as hole transporting compounds in light emitting devices; see

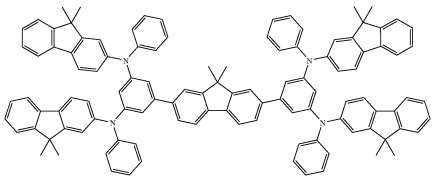
paragraphs [0004], [0020] and [0022], the generic Markush formula 1 in claim 1 and the specific fluorenyl compounds 1 and 5 in paragraph [0039], shown below:



Formula (1)



Compound 1



Compound 5

5.27 D5 can thus be considered an alternative starting point for assessing inventive step.

5.28 *Distinguishing feature and technical effect*

5.29 The claimed compounds differ from those in D5 in that the central fluorenyl scaffold is mono-substituted rather than di-substituted.

5.30 Since the compounds of D5 were not compared with those claimed, there is no evidence that the aforementioned structural difference is associated with a technical effect.

*Technical problem addressed*

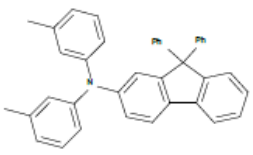
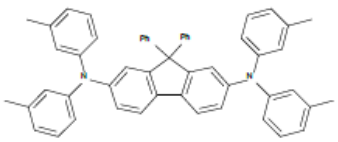
5.31 As already established above (point 5.10), absent any evidence of an effect, the technical problem addressed has to be formulated as providing a) an alternative compound having hole transporting and/or electron blocking properties suitable for use in a phosphorescent organic light emitting device and b) an alternative phosphorescent organic light emitting device.

5.32 As also already established above (points 5.11 to 5.13), this problem has been solved.

*Non-obviousness of the claimed solution*

5.33 The question to be answered is whether the skilled person, starting from D5 and confronted with the stated problem, would have considered providing further compounds comprising only one substituent on the fluorenyl group.

5.34 According to the opponent, D6 provided a hint to the claimed solution because it foresaw using both mono and di-substituted fluorenyl derivatives in electroluminescent devices. Furthermore, D6 showed that a mono-substituted compound (A-14, in example 28) performed better than a di-substituted one (B-14, in example 58).

|  |  |
|---|---|
| A-14 | B-14 |

5.35 These arguments are not persuasive. The compounds of D6, and in particular A-14 and B-14, are substantially different from those claimed and from those of D5 because they lack the 3,5-diaminophenyl moiety attached to the fluorenyl scaffold. The fluorenyl scaffold is in fact directly attached to one or two amino groups, which are further linked to two phenyl rings.

5.36 Therefore, for the reasons already presented above (points 5.17 to 5.24), the teaching of D6 cannot be relied on to transpose the effects of the di-substituted compounds of D5 to the mono-substituted compounds of formula (I) according to the invention. This is even less the case as far as phosphorescent devices are concerned because the tests in both D5 and D6 which were conducted with relevant compounds, were carried out using fluorescent not phosphorescent OLEDs.

5.37 For these reasons, the skilled person would not have considered replacing the compounds of D5 with those claimed. Hence, as already decided by the opposition division, the claimed subject-matter involves an inventive step over a combination of D5 with D6.

*D1 as the starting point*

5.38 D1 is not a better starting point than D5 and D7 mentioned above. In particular, D1 does not disclose phosphorescent OLEDs. Furthermore, the compounds of D1 differ from those claimed even more than the compounds of D5 and D7. Thus, for the reasons presented above, the claimed matter involves an inventive step over D1, whether alone or in combination with D3, which is a book providing common general knowledge in the field of OLEDs.

*D2 as the starting point*

5.39 The above conclusions do not change when starting from D2. As far as it might relate to hole transporting compounds for use in phosphorescent organic light emitting devices (see e.g. paragraphs [0010] and [0044]), D2 relates to compounds which comprise two dibenzothiophene rings attached to a diaminophenyl central scaffold; see claim 1. Only one of the many compounds disclosed in D2 comprises a fluorenyl group (compound N.9). Starting from compound N.9 and looking for an alternative hole transporting compound, the skilled person would not have considered modifying the dibenzothiophene structure characterising the compounds of D2. Hence, the skilled person would not have prepared the claimed compounds and phosphorescent devices comprising them.

*Admission of D12 and of the attack based on it*

5.40 With its statement setting out the grounds of appeal, the opponent filed D12 and formulated a new inventive step objection starting from this document as the closest prior art.

5.41 The proprietor requested that D12 and the new attack based on it not be admitted into the appeal proceedings.

5.42 The opponent submitted that D12 was filed in response to the opposition division's finding that the claimed subject-matter was inventive over D5 and D6. Furthermore, it asserted that D12 had been found accidentally while conducting a further search for relevant documents.

5.43 These are not good reasons for not raising this new objection until the appeal proceedings. Rather, the opponent could and should have already raised it at the outset of the opposition proceedings. Moreover, in its communication issued in preparation for the oral proceedings, the opposition division had already raised doubts that the skilled person would have combined the teaching of D5 and D6. Hence, there was no justification to wait for the opposition division's decision to search for further prior art documents and to formulate a fresh inventive step attack. For these reasons, both D12 and the attack based on it are not admitted into the appeal proceedings (Article 12(4) RPBA 2007).

*Conclusion on inventive step*

5.44 For the reasons presented above, the subject-matter claimed in auxiliary request 2 involves an inventive step (Article 56 EPC).

6. *Adaptation of the description*

The proprietor filed a new version of the description. The opponent did not raise any objection against the new version. The board considers that the amendments made result in an appropriate adaptation of the description to the claims of auxiliary request 2.

**Order**

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

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

   - claims 1-10 according to auxiliary request 2 filed with the patent proprietor's statement of grounds of appeal

   - pages 2 to 18, line 1, of the description as filed during the oral proceedings before the board

   - drawings: Figures 1 to 3j of the patent specification

The Registrar: The Chairman:

M. Schalow A. Haderlein

Decision electronically authenticated