Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 12 March 2024

Case Number: T 1293/21 - 3.4.03

Application Number: 11724356.8

Publication Number: 2715825

IPC: H01L51/50

Language of the proceedings: EN

Title of invention:
OLED HAVING MULTI-COMPONENT EMISSIVE LAYER

Patent Proprietor:
Universal Display Corporation

Opponent:
Merck Patent GmbH

Relevant legal provisions:
EPC Art. 100(a), 100(b), 52(1), 54(1), 54(2), 56

Keyword:
Grounds for opposition - insufficiency of disclosure (no) - lack of patentability (yes)
Novelty - (no)
Inventive step - (no)

Decisions cited:
T 1628/21, T 1473/19

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1293/21 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 12 March 2024

Appellant: (Patent Proprietor)	Universal Display Corporation 250 Phillips Boulevard Ewing, NJ 08618 (US)
Representative:	Maiwald GmbH Elisenhof Elisenstraße 3 80335 München (DE)
Respondent: (Opponent)	Merck Patent GmbH Frankfurter Strasse 250 64293 Darmstadt (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 11 June 2021 revoking European patent No. 2715825 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	M. Papastefanou
Members:	J. Thomas
	D. Prietzel-Funk

Summary of Facts and Submissions

I. The appellant (patent proprietor) appealed against the opposition division's decision that the European patent No. 2 715 825 B1 is revoked because of
- lack of novelty of the main request, of the second auxiliary request and of the fourth to sixth auxiliary requests and
- lack of inventive step of the first, third and seventh auxiliary requests.

II. The opposition had been filed against the patent as a whole. Grounds of opposition were insufficiency of disclosure, lack of novelty and lack of inventive step (Articles 100(a) and (b) EPC in combination with Articles 52(1), 54, 56 and 83 EPC).

III. With the notice of appeal, the appellant requested that the decision under appeal be set aside and that the patent be maintained "*on the basis of claims that will be specified as claim requests during the appeal proceedings*". Oral proceedings were requested as an auxiliary measure.

IV. In its letter of reply to the statement setting out the grounds of appeal, the respondent (opponent) requested that the appeal be dismissed.

V. The parties were summoned to attend oral proceedings before the board and a communication under Article 15(1) RPBA with the board's preliminary opinion was issued.

VI. By letter of 27 July 2023, the respondent (opponent) withdrew its opposition and is thus no more party to the proceedings.

VII. During the oral proceedings, held in the presence of the only remaining party to the case, the appellant's final requests were that the decision under appeal be set aside and that the patent be maintained as granted or in amended form according to the claims of one of the first to seventh auxiliary requests filed with the statement setting out the grounds of appeal.

VIII. The following documents are referred to in this decision:

D6: KR 10-2010-0045326 A
D6': English translation of document D6 submitted by the former respondent with letter of 2 August 2018
D8: US 2007/0252516 A1
D9: DE 10 2008 039 361 A1
D34: The effects of tris (2-phenylpyridine) iridium on the hole injection and transport properties of 4,4 ',4"-tri (N-carbazolyl)-triphenylamine thin films, Li et al., Thin Solid Films, Vol. 522, 2012

IX. Claim 1 of the main request has the following wording (the feature numbering in bold is added by the board):

"***(1)*** *An organic light-emitting device comprising:*
(2) *an anode electrode;*
(3) *a cathode electrode; and*
(4) *an organic electroluminescent layer disposed between the anode electrode and the cathode electrode, the organic electroluminescent layer comprising*

(5) *a phosphorescent dopant and*
(6) *a host material comprising the following three different compounds:*

> ***(6a)*** *(a) an electron-transporting host compound having a triplet energy that is greater than the triplet energy of the phosphorescent dopant;*
> ***(6b)*** *(b) a hole-transporting host compound having a triplet energy that is greater than the triplet energy of the phosphorescent dopant, wherein the hole-transporting host compound is an organometallic complex;*
> ***(6c)*** *(c) a wide band gap host compound having a molecular weight of less than 2,000; wherein the wide band gap host compound has a band gap of at least 2.0 eV and a triplet energy that is greater than the triplet energy of the phosphorescent dopant.*"

X. Claim 1 of the first auxiliary request is amended compared to claim 1 of the main request by adding the following features at the end:

"*wherein the concentration of the wide band gap host compound is in the range of 10-60 wt%;*
wherein the concentration of the electron-transporting host compound and the hole-transporting host compound are each in the range of 10-60 wt%; and
wherein the concentration of the phosphorescent dopant is in the range of 0.5 - 10 wt%”

XI. Claim 1 of the second auxiliary request is amended compared to claim 1 of the main request and claim 1 of the third auxiliary request is amended compared to the first auxiliary request as follows (the underlined features are newly introduced):

"*... the organic electroluminescent layer comprising a phosphorescent dopant and a host material comprising a mixture of the following three different compounds ...*"

XII. Claim 1 of the fourth auxiliary request is amended compared to claim 1 of the second auxiliary request by adding the underlined features:

"*... (b) a hole-transporting host compound ..., wherein the hole-transporting host compound is an organometallic complex, and wherein the organometallic complex is an iridium complex or zinc complex; ...*"

XIII. Claim 1 of the fifth auxiliary request is amended compared to claim 1 of the fourth auxiliary request by adding the underlined features:

"*... (a) an electron-transporting host compound ..., wherein the electron-transporting host compound is an oxadiazole, a benzimidazole, a triazole, a triazine, a benzothiazole, or a carbazole compound or an organometallic complex; ...*"

XIV. Claim 1 of the sixth auxiliary request is amended compared to claim 1 of the fifth auxiliary request by adding the underlined features:

"... (a) an electron-transporting host compound having ..., wherein the electron-transporting host compound is an oxadiazole, a benzimidazole, a triazole, a triazine, a benzothiazole, or a carbazole compound or an organometallic complex and wherein the organometallic complex is an aluminum complex, zinc complex, or beryllium complex; ..."

XV. Claim 1 of the seventh auxiliary request is amended compared to claim 1 of the sixth auxiliary request by adding the same features as added in the first auxiliary request.

XVI. The appellant's arguments as far as they are relevant to the present decision may be summarised as follows:

For the main request, the appellant argued that the organic electroluminescent layer shown in document D6' consisting of TCTA, TPBi, $Ir(ppy)_3$ and $Ir(pq)_2acac$ did not have all the features defined in claim 1. The respective features attributed to TPBi and $Ir(pq)_2acac$ were not contentious. However, TCTA and $Ir(ppy)_3$ acted differently in the layer of D6' than as defined in claim 1 of the main request. TCTA was not disclosed as a "*wide band gap host compound*" having the feature of being an inert material in the organic electroluminescent layer, i.e. not transporting holes or electrons. $Ir(ppy)_3$ also behaved differently in the layer shown in document D6', where it acted as a green emitting phosphorescent dopant and not as a hole transporting host, since it acted as a hole trap.

As to the first auxiliary request, the appellant considered that document D6' should not be taken as the closest prior art. Even if this were the case, there would be no incentive for the skilled person to change the concentration of $Ir(ppy)_3$ as this would increase the contribution of the green colour and change the white colour from a pure white tone to a white with green tone.

With regard to the other auxiliary requests, the appellant essentially relied on its submissions on the main request and the first auxiliary request.

Further details of the appellant's arguments are dealt with in more detail in the reasons for the decision.

Reasons for the Decision

1. Document D6

Document D6 is a Korean patent document in Korean language, for which the former respondent submitted an English translation referred to as document D6' (see point VIII. above). This translation was never objected by the appellant during the opposition or appeal proceedings. Therefore, any reference to document D6' implies a corresponding reference to the relevant content of document D6.

2. Main request - novelty

2.1 Document D6' describes an organic light emitting diode (OLED; see document D6, abstract) and discloses all features defined in claim 1 as will be detailed in the following.

2.2 It was common ground that the OLED shown in document D6' comprised an anode electrode (D6': paragraph [0012]), a cathode electrode (D6': paragraph [0012]) and an organic electroluminescent layer disposed between the anode electrode and the cathode electrode (D6': paragraph [0013]).
Therefore, **features (1) to (4)** of claim 1 are shown in document D6'.

2.3 Moreover, document D6' discloses in paragraph [0015] that an organic electroluminescent layer is foreseen

between the anode and the cathode which comprises a "*mixed host structure ... [which] is a mixture of a hole transport host material and a charge transport host material*". At least one of the emitting layers is a red-green emitting layer (D6': paragraph [0017]). Since $Ir(ppy)_3$ is a green emitter and $Ir(pq)_2acac$ is a red emitter, the layer comprising four materials, namely TCTA, TPBi, $Ir(ppy)_3$ and $Ir(pq)_2acac$ (paragraphs [0026], [0028] and [0030]) is considered to represent the relevant organic electroluminescent layer whereby the specific functions of each of the materials remain unspecified in the disclosure of D6'.

2.4 It was not contested that in this organic electroluminescent layer of D6' $Ir(pq)_2acac$ acted as red phosphorescent dopant. **Feature (5)** of claim 1 is thus disclosed in document D6'.

2.5 Considering $Ir(pq)_2acac$ as phosphorescent dopant, there remain three further materials, namely TCTA, TPBi and $Ir(ppy)_3$, which are considered to represent the host compounds of claim 1. Therefore, **feature (6)** of claim 1 (the introductory part) is also disclosed in document D6'.

2.6 The appellant did not contest that TPBi had all the characteristics of an electron-transporting host compound as defined in claim 1 having a triplet energy that is greater than the triplet energy of the phosphorescent dopant $Ir(pq)_2acac$. Therefore, **feature (6a)** of claim 1 is disclosed in D6'.

2.7 It is considered common general knowledge that in this kind of organic electroluminescent layer, it is not excluded that a given material may have more than one function. Thus, in the layer of document D6', the fact

that $Ir(ppy)_3$ acts as a green emitter does not exclude it from having additional characteristics, e.g. host characteristics. This general possibility of a dual function of a single material in a semiconductor layer was not disputed by the appellant, either.

2.8 $Ir(ppy)_3$ is an organometallic complex and has a triplet energy greater than that of $Ir(pq)_2acac$. In addition, it is known, and was already known prior to the international filing date of the patent, that $Ir(ppy)_3$ has hole-transporting characteristics, as indicated in e.g. document D34 (first page 352, left column, fifth line from below).

In document D34, the hole-transporting characteristics of TCTA doped with $Ir(ppy)_3$ are studied. It shows that TCTA and $Ir(ppy)_3$ influence each other with regard to their hole-transporting characteristics. However, both materials are suitable for transporting holes. Even if the hole-transporting characteristics might be more or less pronounced depending on the mixture of materials in the layer and the concentration of TCTA in proportion to $Ir(ppy)_3$, their general characteristics should not be ignored. Since claim 1 does not define any specific quantitative mixture of the used compounds in the layer, their exact hole transporting characteristics cannot be determined. Since Ir(ppy)3 is generally known to be suitable for transporting holes and this is not excluded in the layer of document D6', Ir(ppy)3 can be seen to correspond to the hole-transporting host compound defined in **feature (6b)** of claim 1, which is thus disclosed in document D6'.

2.9 The appellant argued that in document D34, $Ir(ppy)_3$ was presented with a much lower hole mobility than TCTA. In addition, doping TCTA with $Ir(ppy)_3$ reduced the hole-

transporting capabilities of $Ir(ppy)_3$ since it acted as a hole trap due to its green emitting property (D34, Abstract, second sentence and section "1. Introduction"). Therefore, the hole-transporting material in the mixture used in the layer of document D6' was TCTA and not $Ir(ppy)_3$.

The board is not convinced by this argument.
The teaching of document D34 cannot be transferred unconditionally to the teaching of document D6, as the used mixture of the compounds and their respective proportions are not identical between document D6' and document D34.
In addition, document D34 teaches that the combination of $Ir(ppy)_3$ and TCTA can be considered "*as a hopping system*" wherein both compounds, $Ir(ppy)_3$ and TCTA, are presented with hole-transporting properties (D34, section "1. Introduction", fourth paragraph and section "3. Results and discussion", last paragraph). Based thereon, the board understands that the hole transporting properties of $Ir(ppy)_3$ are not excluded even when $Ir(ppy)_3$ is present in a mixture with TCTA and even when $Ir(ppy)_3$ is acting in this mixed layer as a hole-trapping host in order to act as a phosphorescent emitter. Therefore, the board concludes that document D34 does not teach that $Ir(ppy)_3$ in the presence of TCTA cannot anymore act as hole transporter and does not exclude hole transporting capabilities of $Ir(ppy)_3$ in a layer comprising $Ir(ppy)_3$ and TCTA. Therefore, in the organic electroluminescent layer discussed in document D6', $Ir(ppy)_3$ is considered suitable to act as a hole transporting host and therefore anticipates feature (6b) of claim 1.

2.10 Finally, TCTA is the fourth material in the organic electroluminescent layer discussed in document D6'.

TCTA has all the features defined in feature (6c) of claim 1:

- a molecular weight of less than 2,000,
- a wide band gap of more than 2,0 eV and
- a triplet energy greater than that of $Ir(pq)_2acac$ (the phosphorescent dopant).

Therefore, the board concludes that the compound of feature (6c) is disclosed in document D6' by TCTA which has all properties defined by **feature (6c)** of claim 1.

2.11 The appellant did not dispute that TCTA had the three characteristics mentioned in the previous paragraph and defined for feature (6c) in claim 1.

However, the appellant asserted that TCTA was defined in claim 1 as a "*wide band gap host compound*", which in an OLED had to be understood as an inert host, i.e. a host compound that did not function either as an electron transporting host or as a hole transporting host. Furthermore, a compound could not function simultaneously as an inert material compound and as a hole-transporting host, but either as one or the other. Since TCTA was in document D6' disclosed as a hole-transporting host, i.e. not being inert, feature (6c) was not disclosed in its entirety in document D6'.

2.12 The board is not convinced by this appellant's argument for the following reasons.

A "*wide band gap host compound*" refers to a characteristic that defines the energy levels (of the quantum mechanical orbits) of the compound without implying anything about the ability to transport holes or electrons. Therefore, the definition of a "*wide band gap host compound*" cannot necessarily be extended to an

"*inert host*". Moreover, whether a compound acts as an electron- or hole-transporting host depends not only on its own quantum mechanical orbits, i.e. its own energy level and the related band gaps, but also on those of the other compounds mixed in the layer. Therefore, the board cannot agree to the statement that a "*wide band gap host compound*" must in any case, necessarily and mandatorily show an inert behaviour.

To the best of the board's knowledge, there is no known standard definition of a "*wide band gap host compound*" that includes an inert behaviour as a mandatory characteristic.

The description of the patent (paragraph [0026]) on which the appellant relied on, does not unambiguously define the "*wide gap band host compound*" as generally and unconditionally inert compound, either. Paragraph [0026] of the description does not state that the inert behaviour is an implicit, obligatory feature of a "*wide band gap host compound*". According to the board's understanding, the inert behaviour of the compound is presented as an additional function to be provided by the "*wide band gap host compound*" (see e.g. paragraph [0026] which starts with the word "*Additionally*"). In the board's opinion, this is further confirmed in the same paragraph [0026], since each passage mentioning the "*wide band gap host compound*" should - in the board's view - be read with the meaning of the "*wide band gap host compound of the invention*".

2.13 A similar understanding applies to the examples given by the appellant in the prior art documents (D8, paragraph [0210] and D9, paragraph [0009]) in which the wide band gap materials are used in the respective context with the additional characteristic of

exhibiting inert behaviour specific to their respective applications. No general statement can be derived from these references that the term *"wide band gap host compound*" always and necessarily means that the compound behaves inertly. In the board's opinion, this inert behaviour is not to be understood as a generally valid, restrictive condition for a "*wide band gap host compound*".

Moreover, it is noted that document D9 refers to an "*ultra wide band gap material*" (D9: paragraph [0009]) which should not necessarily be equated with a "*wide band gap material*".

Therefore, the board concludes that feature (6c) of claim 1 does not require more than a "*wide band gap*" of more than 2.0 eV, as is usually assumed in the semiconductor field, and in particular should not necessarily imply an inert behaviour of the compound.

2.14 Besides the previous conclusion and in addition thereto, the board mentions that even if the description should be understood in the sense that the inert behaviour is an additional limiting feature of the "*wide band gap host compound*", this additional limiting feature cannot be considered to be unconditionally included in the corresponding definition of the compound in claim 1.

In case T 1628/21, the deciding board found that "*limiting features which are only present in the description and not in the claim cannot be read into a patent claim*" (part of Catchword of T 1628/21) at least as long as this limiting feature is not clearly included due to the common general knowledge of the feature defined in the claim (see T 1628/21,

Reasons 1.1.11 to 1.1.16). A similar conclusion was drawn in case T 1473/19 (Reasons 3.16.1).

The present board is of the opinion that this also applies to the present situation concerning the inert behaviour of the *"wide band gap host compound*". Therefore, even if the description mentions an inert behaviour as a characteristic of the *"wide band host compound"* in the present context, this inert behaviour cannot be unconditionally seen as a limiting feature to the subject-matter of claim 1, because the common general understanding of the term *"wide band host compound"* does not include such a characteristic.

2.15 Hence, the board concludes that the OLED disclosed in document D6' with the organic electroluminescent layer composed of a mixture of TCTA, TPBi, $Ir(ppy)_3$ and $Ir(pq)_2acac$ anticipates the novelty of the OLED defined in claim 1 since each of the four materials is suitable for acting as one of the four compounds defined in claim 1 (Article 100(a) EPC in combination with Articles 52(1) and 54(1) and (2) EPC).

3. First auxiliary request - inventive step

3.1 The feature amended in claim 1 of the first auxiliary request further defines the respective concentrations of the four compounds comprised in the organic electroluminescent layer.

3.2 Closest prior art

3.2.1 The opposition division and the former respondent considered document D6' as a suitable starting point for the assessment of inventive step. The board agrees.

3.2.2 The appellant argued that document D6/D6' was not the correct starting point for assessing inventive step, as it could only with hindsight be used as the closest prior art.

3.2.3 The board does not agree with this argument. Both documents, the impugned patent and document D6', deal with the structural design of an OLED. In addition, the OLED defined in claim 1 has many features in common with the OLED disclosed by document D6' (see main request), the reason for which the skilled person would consider document D6'. The board cannot see any convincing reason not to start from document D6' in the present situation. Nor did the appellant put forward any convincing argument in this respect, apart from the fact that, as discussed in relation to the main request, it did not agree that the four materials in the layer of D6' corresponded to the compounds defined in claim 1 of the main request.

3.3 Distinguishing features

3.3.1 In addition to the features already dealt with for the main request, document D6' discloses the proportions of the four materials comprised in the organic electroluminescent layer as follows: TCTA:TPBi:$Ir(ppy)_3$:$Ir(pq)_2$acac in a ratio of 50:50:10:1 (D6': paragraphs [0026] and [0028]). Document D6' does not explicitly define whether these proportions refer to volume percentages or weight percentages. However, since document D6' only mentions weight ratios (D6': paragraphs [0017] and [0022]) the board concludes that the proportional ratios indicated in paragraphs [0026] and [0028] also refer to weight ratios. The appellant agreed with this conclusion. Downscaling these

proportions to a weight percentage of 100%, the respective concentrations of the four materials are

45 wt% for TCTA,
45 wt% for TPBi,
9 wt% for $Ir(ppy)_3$ and
0.9 wt% for $Ir(pq)_2acac$.

3.3.2 Comparing the concentrations in document D6' to the ranges defined in claim 1, the only concentration which is outside the claimed ranges is the one for $Ir(ppy)_3$. Claim 1 defines for $Ir(ppy)_3$ (the hole-transporting host compound) a range of 10 to 60 wt%, but in the layer of D6' it is only 9 wt%.

3.3.3 Therefore, the sole distinguishing feature of the subject-matter of claim 1 as compared to document D6' is the concentration of $Ir(ppy)_3$ (10 to 60% instead of 9%).

3.4 Objective technical problem

The patent is silent regarding any particular technical effect obtained from the claimed range of concentration of the hole-transporting host compound. The appellant did not argue that there was any, either. In the board's opinion, an increase in the concentration of the hole-transporting host compound from 9 wt% to 10 wt% (lower end of the claimed range) would not cause any difference in the behaviour of the hole-transporting host compound or the OLED in general. Hence, the objective technical problem solved by this distinguishing feature is seen as how to provide an alternative OLED to the one known from document D6'.

3.5 Obviousness

3.5.1 The board considers the change from 9 wt% of $Ir(ppy)_3$, as used in document D6' to at least 10 wt% as defined in claim 1 to represent a standard modification, the skilled person would consider in order to solve the problem of providing an alternative OLED.

3.5.2 The appellant argued that if the concentration of $Ir(ppy)_3$ was increased in the OLED of document D6', it would not emit white light any more, but a colour closer to green, at leat a white with a green tone, since $Ir(ppy)_3$ was the green emitter in the OLED. Document D6' described OLEDs of white colour and so it tought away from any modification in the emitting layer(s) of the OLEDs that would change the colour of the emitted light. The skilled person would thus never contemplate the increase of the concentration of $Ir(ppy)_3$ under these circumstances.

3.5.3 The board is not convinced by this argument. In the board's opinion, the white colour has colour tones of a rather large spectral bandwidth and is not strictly related to a specific bandwidth. A change from 9 wt.% to 10 wt.% of $Ir(ppy)_3$ would thus at most slightly change the tone of the white colour but will not change to a more green light, as the appellant argued. In addition, since the ranges of the other materials within the composition might also be adapted, the board is convinced that the skilled person would be able to find a comfortable white tone even with a weight percentage of 10% or more of $Ir(ppy)_3$. In any case, the board is not convinced that this slight change of the concentration of $Ir(ppy)_3$ would change the white colour from a white tone to a white tone having a uncomfortable green hue or even to a green colour or to any another colour.

3.6 Hence, the board concludes that the subject-matter of claim 1 of the first auxiliary request lacks an inventive step when starting from document D6' in combination with the skilled person's common general knowledge (Articles 52(1) and 56 EPC).

4. Second and third auxiliary requests

4.1 The feature added in claim 1 of the second and third auxiliary request ("*a mixture of*") is already implicitly taken into account in the discussion of lack of novelty of the main request and lack of inventive step of the first auxiliary request. Therefore, the conclusions drawn for claim 1 of the main request and claim 1 of the first auxiliary request apply correspondingly to claim 1 of the second auxiliary request, which consequently lacks novelty (Articles 52(1) and 54(1) and (2) EPC) and claim 1 of the third auxiliary request, which consequently lacks an inventive step (Articles 52(1) and 56 EPC).

4.2 The appellant did not provide any substantive arguments with regard to these requests.

5. Fourth to sixth auxiliary requests

5.1 The additional features added in the respective claims 1 of these auxiliary requests were considered by the opposition division as having been disclosed in document D6', the reason for which these claims were also considered not new over the teaching of document D6'.

5.2 The appellant did not provide any convincing argument why these additional features should be considered new and inventive in view of document D6' but only argued

that these requests should be considered new for the same reasons as the main request ("*The above given applies, mutatis mutandis, also [sic] the ... Fourth, Fifth, and Sixth Auxiliary Requests*"; statement setting out the grounds of appeal, paragraph 82).

5.3 It remained thus uncontested that these additional features were disclosed in document D6'. Therefore, the reasoning for claim 1 of the main request and claim 1 of the second auxiliary request applies *mutatis mutandis* to claim 1 of the fourth to sixth auxiliary requests.

5.4 Hence, the respective claim 1 of the fourth to sixth auxiliary requests is not new over the teaching of document D6' (Articles 52(1) and 54(1) and (2) EPC).

6. Seventh auxiliary request

6.1 The features defined in claim 1 of the seventh auxiliary request are a combination of the features of the respective claim 1 of the first and sixth auxiliary requests.

The combination of these features as now defined in claim 1 of this request has no special further effect, which is why the entire argumentation used for the first and sixth auxiliary requests applies in the same way to the seventh auxiliary request.

6.2 The appellant did not provide any particular argument for this request but only referred to the higher ranking requests on which this request is based.

6.3 The board therefore concludes that claim 1 of the seventh auxiliary request lacks an inventive step

(Articles 52(1) and 56 EPC) for the same reasons as claim 1 of the first auxiliary request.

7. Conclusion

Since the board comes to the conclusion that the subject-matter of claim 1 of the main request and claim 1 of the second and fourth to sixth auxiliary requests is not new and the subject-matter of claim 1 of the first, third and seventh auxiliary requests does not involve an inventive step, the appeal must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero M. Papastefanou

Decision electronically authenticated