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Datasheet for the decision of 16 April 2018

Case Number: T 2526/17 - 3.4.03

Application Number: 14169289.7

Publication Number: 2806458

IPC: H01L27/32, H01L27/12, G09G3/32

Language of the proceedings: EN

Title of invention:
Organic light-emitting display apparatus and method of repairing the same

Applicant:
Samsung Display Co., Ltd.

Headword:

Relevant legal provisions:
EPC Art. 82, 56
EPC R. 64, 103(1)(a)

Keyword:
Unity of invention - (yes) - invitation to pay further fees justified (no)
Reimbursement of appeal fee - (no)

Decisions cited:
G 0001/11, T 0188/00

Catchword:

Europäisches Patentamt
European Patent Office
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Beschwerdekammern

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Case Number: T 2526/17 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 16 April 2018

Appellant: (Patent Proprietor)	Samsung Display Co., Ltd. 17113, 1, Samsung-ro Giheung-Gu Yongin-si Gyeonggi-do (KR)
Representative:	Niepelt, Carsten Gulde & Partner Patent- und Rechtsanwaltskanzlei mbB Wallstraße 58/59 10179 Berlin (DE)
Decision under appeal:	**Interlocutory decision of the Examining Division of the European Patent Office posted on 12 July 2017 rejecting the request for refund of additional search fees.**

Composition of the Board:

Chairman	G. Eliasson
Members:	M. Papastefanou
	W. Van der Eijk

Summary of Facts and Submissions

I. The appeal of the Applicant (Appellant) is against the interlocutory decision of the Examining Division refusing the refund of the additional search fees the Appellant had paid during the search phase. The Search Division had found that the originally filed claims did not fulfill the requirement of unity of invention (Article 82 EPC) and had invited the Appellant to pay 6 additional search fees.

II. The Appellant requests that the decision under appeal be set aside and that the paid additional search fees be refunded. In addition, the Appellant requests reimbursement of the appeal fee because of a substantial procedural violation allegedly committed by the Examining Division.

III. The following documents, cited in the decision under appeal, are relevant for this decision:

D1: US 2007/0152567 A1
D2: US 2008/0062096 A1.

IV. The first instance proceedings

The application was originally filed with a set of 32 claims comprising independent claims 1 (apparatus) and 26 (method). Claims 2-25 were dependent, directly or indirectly, on claim 1 and claims 27-32 depended directly or indirectly on claim 26.

The Search Division issued a partial European search report accompanied by an invitation to pay 6 additional search fees. The Search Division considered that claims 1 and 26 were obvious in view of a combination of

documents D1 and D2. The special technical features of the dependent claims were not linked to form a single general inventive concept nor did they address a common technical problem. According to the Search Division, the claims defined in total 7 separate inventions and the Appellant was invited to pay 6 additional search fees.

The Appellant paid all the requested fees. A final search report and search opinion (ESOP) covering all claims and including the reasoning of the objection regarding lack of unity were issued.

During the examination procedure, the Appellant requested refund of the additional search fees, arguing that it was not justified to split the claims in so many inventions. The Examining Division confirmed the findings of the Search Division concerning lack of unity and rejected the Appellant's request for refund.

At the Appellant's request, the Examining Division issued an interlocutory decision refusing the refund of the additional search fees; this is the decision under appeal. At the same time, the Examining Division issued a communication pursuant Rule 71(3) EPC with the proposal to grant a patent based on an amended version of the claims.

V. In the mean time, the Appellant has filed translations of the claims, indicating its agreement to the text proposed for grant.

VI. Claim 1 as originally filed has the following wording:

An organic light-emitting display apparatus (100) comprising:

an emission device (E) comprising a plurality of sub-emission devices (SE1, SE2);
an emission pixel circuit (PCi) configured to supply a driving current to the emission device (E);
a dummy pixel circuit (PCn+1) configured to supply the driving current to the emission device (E); and
a repair line (RL) coupling the emission device (E) to the dummy pixel circuit (PCn+1),
wherein the emission device (E) is configured to receive the driving current from the emission pixel circuit (PCi) or the dummy pixel circuit (PCn+1).

VII. Independent claim 26 as originally filed has the following wording:

A method of repairing a defective pixel in an organic light emitting display apparatus (100), the organic emitting display apparatus (100) comprising a plurality of emission pixels (EP) comprising an emission device (E) comprising a plurality of sub-emission devices (SE1, SE2), the sub-emission devices (SE1, SE2) being configured to receive a corresponding driving current from one of an emission pixel circuit (PCi) and a dummy pixel circuit (PCn+1), the method comprising:
connecting the defective pixel to the dummy pixel circuit (PCn+1) through a repair ling (RL); and
after connecting the defective pixel to the dummy pixel circuit (PCn+1), if the defective pixel does not normally emit light, separating the plurality of sub-emission devices (SE1, SE2).

VIII. The Appellant's arguments can be summarized as follows:

(a) Regarding the request for refund of the additional search fees, the Appellant, during the first instance proceedings, argued that the Examining

Division exaggerated in identifying 7 different inventions. The Appellant argued mainly that the dependent claims did not define special technical features that were so remote from each other that they could be considered separate inventions or that an extra search effort was needed to search for them in the prior art.

In the grounds of appeal, the Appellant contests additionally the conclusion of the Search Division (confirmed by the Examining Division) that the subject matter of claim 1 was obvious in view of D1 and D2.

(b) Regarding the request for reimbursement of the appeal fee, the Appellant argues that the Examining Division, although it knew that the original reasoning by the Search Division regarding lack of unity was not correct, confirmed the lack of unity by providing new arguments, something that it was not permitted to do. The Examining Division committed thus a substantial procedural violation that would justify a reimbursement of the appeal fee.

Reasons for the Decision

1. According to the decision of the Enlarged Board of Appeal G1/11 (OJ 2014, A122), an appeal against an examining division's decision not to refund search fees under Rule 64(2) EPC, which is taken separately from its decision granting a patent or refusing the application, is to be heard by a technical board of appeal (see Headnote).

In the present case, the interlocutory decision not to refund the additional search fees was issued on 12 July 2017, while the decision to grant a patent has not been issued yet. G1/11, thus, applies and the Board is confident that it has the power to decide on the present case.

2. The appeal is admissible.

3. Unity of invention

3.1 The Search Division raised an objection for lack of unity *a posteriori*, meaning that the objection was based on prior art documents. The Search Division found that the subject matter of independent claims 1 and 26 did not involve an inventive step in light of the combination of D1 and D2. The dependent claims comprised special technical features that were not linked to form a single general inventive concept nor did they address a common technical problem. The Search Division concluded that there were 7 different inventions and invited the Appellant to pay 6 additional search fees for the complete claim set to be searched.

3.2 The Appellant's request for the refund of the additional search fees is based on two lines of reasoning. During the examination procedure, the Applicant argued extensively that the dependent claims did not define special technical features that were so remote from each other that they could be considered separate inventions or that an extra search effort was needed to search for them in the prior art. In the grounds of appeal, a second line of reasoning was added in that the Appellant contested the conclusion of the Search Division (which was confirmed by the Examining

Division) that the subject matter of claims 1 and 26 was obvious in light of the combination of D1 with D2.

The Board understands that if it were to reach a different conclusion regarding the obviousness of the subject-matter of claims 1 and 26 in light of the combination of D1 and D2, i. e. that it was not obvious, then the objection for lack of unity would become moot, since there would be a single general inventive concept linking all the claims.

3.3 Claims 1 and 26, Inventive Step (Article 56 EPC)

3.3.1 D1 was considered to be representing the closest prior art.

The Appellant does not contest that D1 discloses an organic light-emitting display apparatus (paragraph [0003]) which comprises (see Figure 2 and paragraph [0036]) an emission device (*pixel electrode 270*) connected to an emission pixel circuit (*current control unit 250).*

3.3.2 A point of disagreement between the Appellant and the Examining Division was whether D1 disclosed a dummy pixel circuit in the sense of the present application.

3.3.3 It is generally known that a pixel circuit is a circuit that controls the switching and the driving of the pixel emission device (pixel electrode). As it is explained in the application (originally filed description, paragraph [0109] and Figure 14), an emission pixel circuit in a light-emitting display apparatus like the one of the claims comprises at least a thin film transistor (TFT) and at least one capacitor.

In D1 the emission pixel circuit corresponds to the current control unit (250), which controls the driving and the switching of the pixel electrode (270). The current control circuit of D1 comprises two TFT transistors (one for driving and one for switching) and one capacitor (paragraph [0037] and [0041], Figure 2).

3.3.4 In the decision under appeal, the Examining Division considered that the redundant active device (260) of D1 corresponded to the dummy pixel circuit of the claimed invention.

The Board does not share this opinion of the Examining Division. The redundant active device (260) of D1 is a TFT that can replace the driving TFT of the current control unit (250) in case of malfunction of this driving TFT (see paragraphs [0036] and [0043]). In D1, there is a redundant active device for every current control unit. In other words (using the terminology of the claim), for every pixel emission device (pixel electrode in D1) there is a corresponding emission pixel circuit (current control unit 250) and a redundant active device (an additional, redundant driving TFT), which is to be used in case the main driving TFT of the pixel circuit malfunctions. The redundant active device, therefore, is not a redundant (dummy) pixel circuit in the sense of the present application, it is only a redundant (dummy) element of the pixel circuit.

3.3.5 In the claimed invention, the dummy pixel circuit (DP) is a redundant complete pixel circuit which is associated to a complete column (or row) of pixel circuits and is available to replace any of the pixel circuits of the specific column (or row) that may

malfunction (see Figure 2). A malfunction of the emission pixel circuit does not have to be at the driving TFT only (as in D1), since the dummy pixel circuit is able to replace the whole of the emission pixel circuit in case of malfunction.

The Board concludes, therefore, that D1 does not disclose a dummy pixel circuit in the sense of claim 1.

3.3.6 The features distinguishing claim 1 from D1 are, hence, the dummy pixel circuit connected to the emission device via a repair line and the plurality of sub-emission devices, which are part of the emission device. In D1 there is no indication or suggestion that the emission device (pixel electrode) comprises any sub-emission devices.

The skilled person is, thus, faced with the objective technical problem of how to guarantee the operation of the light-emitting display apparatus in case of malfunction of the driving pixel circuit and/or the (light) emission device.

3.3.7 Document D2 describes an active matrix display apparatus comprising emission (light-emitting) devices (EL) each driven by a pixel circuit ("2", see Figure 2 and paragraph [0042]). In an embodiment of the described display apparatus, the light-emitting device (EL) is divided in a pair of sub-light-emitting devices (EL1, EL2 see Figure 5 and paragraph [0049]). One of these sub-light emitting devices is not in operation under normal conditions but rather plays the role of a reserve (redundant) sub-light-emitting device in case the other sub-light-emitting device malfunctions (paragraph [0050]).

There is no mention or suggestion of any dummy/ redundant pixel circuit in D2.

3.3.8 The skilled person starting from D1 and seeking a solution to the identified objective technical problem, would find a partial solution in D2, which corresponds to the solution regarding the (light) emission device defined in the apparatus of claim 1.

However, he would not find any solution regarding a possible malfunction of the pixel circuit corresponding to the solution of claim 1, since neither D1 nor D2 disclose or suggest a dummy pixel circuit like the one of claim 1.

3.3.9 Therefore, were documents D1 and D2 to be combined as in the decision under appeal, there would still be the dummy pixel circuit remaining as a new and inventive feature. This new and inventive feature would, hence, provide the single general inventive concept linking all the claims 1-25 since claims 2-25 depend all directly or indirectly on claim 1. The same reasoning and conclusion applies for independent claim 26 and dependent claims 27-32, which all depend directly or indirectly on it.

3.4 The Board concludes, therefore, that the originally filed set of claims fulfilled the requirement of unity of invention within the meaning of Article 82 EPC and the communication inviting the Appellant to pay additional search fees was not justified. The additional search fees paid by the Appellant should be refunded pursuant to Rule 64(2) EPC.

4. Request for reimbursement of the appeal fee

4.1 According to Rule 103(1)(a) EPC, the appeal fee shall be reimbursed in full where the Board of Appeal deems an appeal to be allowable, if such reimbursement is equitable by reason of a substantial procedural violation.

Since the Board deems the appeal to be allowable, it remains to assess whether a reimbursement of the appeal fee would be equitable by reason of a substantial procedural violation.

4.2 The Appellant argues that the Examining Division was aware that the original reasoning by the Search Division regarding lack of unity was not correct and yet insisted in rejecting the request for refund of the search fees (see paragraph bridging page 1 and 2 of the grounds of appeal)

The Appellant argues that the Examining Division had recognised that the original reasoning of the Search Division was not correct in relation to claims 3 and 4 but proceeded to confirm the non-unity objection by providing new arguments. Making reference to the decision of the Boards of Appeal T 188/00, the Appellant argued that it was not allowed for the Examining Division to produce new arguments to support a non-unity objection raised by the Search Division and that the Examining Division was only limited to agree or disagree with the orignal reasoning. By producing new arguments, the Examining Division committed a substantial procedural violation which would justify a reimbursement of the appeal fee.

4.3 Comparing the decision under appeal to the original objection for lack of unity in the partial search report, the Board notes that the grouping of the claims

in the various inventions is the same in both cases (compare point 1.7.18 of the decision under appeal with SHEET B of the partial European search report).

4.4 The arguments/objections concerning each claim are essentially the same in both cases with two exceptions.

In the original reasoning it was considered that the features of claims 2, 3 and 4 were all disclosed in D2 (SHEET B, point 1.1.7). In the decision under appeal it is considered that the subject-matter of claim 4 comprised features which represented a contribution over the prior art (combination of D1 and D2) and were, hence, regarded as special technical features in the sense of a unity assessment (point 1.5 of the decision under appeal).

In addition, the passage of D2 considered to disclose the features of claim 3 is not the same in both cases (paragraph [0049] in point 1.1.7 of SHEET B); paragraph [0041] in point 1.4.4 of the decision under appeal).

4.5 The Board acknowledges these differences in the reasoning of the objection but considers that they do not affect the reasoning of the objection as a whole.

Claims 1-5 were considered to belong to the same invention in both cases. Claims 3, 4 and 5 depend on claim 2. In the original objection, the Search Division considered that claims 2-4 were disclosed in D2 and regarded the features of claim 5 as the special technical features of the first invention (SHEET B, point 1.1.8). In the decision under appeal, the Examining Division considered the features of claim 4 to be the special technical features of the first invention. Since claims 4 and 5 were unitary, claim 5

belonged also to the same invention (point 1.6.1 of the decision under appeal). Hence, the definition of the different inventions included in the claims is the same in both cases.

4.6 In the case underlying decision T 188/00, the Examining Division used a document which was not present in the search report to assess unity of invention in the originally filed claims and confirmed the Search Division's invitation to pay additional search fees. The deciding Board (which was the present Board in a different composition) concluded that the Examining Division's assessment of the reasoning of the objection for lack of unity raised by the Search Division had to be carried out having regard only to the facts presented by the search division (Reasons, point 4.5). By using a document that was not cited in the partial search report, the Examining Division did not review the finding of lack of unity of invention but carried out a fresh examination (Reasons, point 4.6).

The present case is different, however, since the Examining Division used the same documents that were used by the Search Division in its assessment. The Examining Division apparently reached a different conclusion from the Search Division regarding whether the subject matter of claim 4 was disclosed in D2 or not and which passage of D2 disclosed the features of claim 3.

Even if it were considered that the Search Division was wrong in its assessment regarding claims 3 and 4, this would have no bearing on the definition of the different inventions identified in the claims, since claims 1-5 were already considered to belong to the same invention and none of the remaining claims 6-32

depended directly on any of the claims 3 or 4 or 5.

4.7 Although the reference to T 188/00 is not pertinent in this case, the Board agrees with the Appellant that the review mentioned in Rule 64(2) EPC should be directed not only to the facts but also to the arguments used by the search division in its invitation to pay additional search fees. This has been the jurisprudence of the Boards of Appeal in so-called PCT-protest procedures, as is also recognised in T 188/00; see point 4.5, second paragraph, of the reasons.

In the case at hand it is clear, however, that the differences in argumentation, as explained above, had no bearing in the assessment of number of different inventions involved and the decision not to refund the additional search fees. The alleged procedural violation is therefore not substantial. The request for reimbursement of the appeal fee must consequently be refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The additional search fees paid are to be refunded.

3. The request for reimbursement of the appeal fee is refused.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated