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**Datasheet for the decision
of 5 February 2024**

Case Number: T 1920/19 - 3.4.02

Application Number: 12181906.4

Publication Number: 2579238

IPC: G09G3/32

Language of the proceedings: EN

Title of invention:

Organic light-emitting display device

Applicant:

LG Display Co., Ltd.

Headword:

Relevant legal provisions:

EPC Art. 84, 123, 111(1)
RPBA 2020 Art. 11

Keyword:

Claims - clarity after amendment (yes)
Amendments - allowable (yes)
Remittal - (yes)

Decisions cited:

Catchword:



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Case Number: T 1920/19 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 5 February 2024

Appellant: LG Display Co., Ltd.
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Representative: Viering, Jentschura & Partner mbB
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 7 February 2019
refusing European patent application
No. 12181906.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: A. Hornung
G. Decker

Summary of Facts and Submissions

- I. The applicant lodged an appeal against the decision of the examining division refusing European patent application No. 12181906.4 on the basis of Article 97(2) EPC because the set of claims of the main request then on file did not fulfil the requirements of Articles 83, 84 and 123(2) EPC. The sets of claims of the auxiliary requests 1 to 13 then on file were not admitted into the proceedings under Rules 116(1) and 137(3) EPC because they were late-filed and found not compliant with the requirements of at least one of the Articles 83, 84 and 123(2) EPC. The sets of claims of the auxiliary requests 14 to 20 then on file did not fulfil the requirements of at least one of the Articles 84 and 123(2) EPC.

- II. With the statement setting out the grounds of appeal, the applicant requested that the decision of the examining division be set aside and a patent be granted on the basis of the claims of the main request or of one of the auxiliary requests 1 to 20 underlying the appealed decision.

- III. On 21 September 2022, the board summoned the applicant to oral proceedings. In a communication accompanying the summons, the board provided its provisional opinion on the merits of the appeal.

- IV. In response to the summons to oral proceedings, the applicant submitted, by letter of 6 September 2023, a new main request based on the auxiliary request 20 underlying the appealed decision, which replaced all the previous requests on file.

V. Subsequently, oral proceedings, which which were appointed for 11 January 2024, were cancelled.

VI. Claim 1 of the main request reads as follows:

"An organic light-emitting display device comprising:

an organic light-emitting panel (10) in which a plurality of pixel regions (P) are arranged, each of the pixel regions (P) including an organic light emission element (OLED), a drive transistor (T6) configured to drive the organic light emission element (OLED), and a sensing transistor (T5) configured to detect a threshold voltage of the drive transistor (T6) during a sensing interval, wherein the drive transistor (T6) is diode-connected by the sensing transistor (T5) during the sensing interval;

a controller (30) configured to obtain from an image signal the pixel number of a low grayscale range and the pixel number of a high grayscale range, compare the pixel number of the low grayscale range and the pixel number of the high grayscale range, wherein the low grayscale range includes grayscales of 0 through 127, and the high grayscale range includes grayscales of 128 through 255, and adjust the sensing interval according to a compared resultant;

a power supplier (20) configured to adjust a gamma reference voltage (VSS) for generating a plurality of gamma voltages according to the compared resultant;

a scan driver (40) configured to apply a scan signal (Scan) to the organic light-emitting panel (10);

a gamma voltage generator (50) configured to generate the gamma voltages based on the adjusted gamma reference voltage (VSS');

a data driver (60) configured to generate a data voltage (Vdata) using the gamma voltages and apply the data voltage (Vdata) to the organic light-emitting panel (10);

an image analyzer (110) configured to derive a histogram signal (HS), which includes the pixel number for each grayscale, from the image signal;

a calculator (130) configured to compare the pixel number of the low grayscale range and the pixel number of the high grayscale range on the basis of the histogram signal (HS), and generate a control signal (CS) for adjusting the sensing interval and a gamma control signal (GCS) for adjusting the gamma reference voltage (VSS) in accordance with a compared resultant; and

a timing controller (140) configured to generate scan control signals (SCS') for adjusting the scan signal (Scan) on the basis of the control signal (CS),

wherein if the pixel number of the high grayscale range is larger than the pixel number of the low grayscale range, the sensing interval is shortened and the gamma reference voltage is maintained as first gamma reference voltage, and

wherein if the pixel number of the low grayscale range is larger than the pixel number of the high grayscale range, the sensing interval is lengthened and the gamma reference voltage becomes a second gamma reference voltage higher than the first gamma reference voltage".

Reasons for the Decision

1. Main request

The main and single request consists of a single claim, which is based on claim 1 of auxiliary request 20 underlying the appealed decision. In particular, present claim 1 differs from claim 1 of previous auxiliary request 20 in that it comprises the following features

(a) "*wherein the drive transistor (T6) is diode-connected by the sensing transistor (T5) during the sensing interval*" (instead of the feature "*wherein the sensing transistor (T5) is diode-connected with the drive transistor (T6) during the sensing interval*")

and

(b) "*the high grayscale range includes grayscales of 128 through 255*" (instead of the feature "*the high grayscale range includes grayscales of 127 through 255*").

2. Objections raised in the appealed decision

2.1 According to the appealed decision, point 75, the objections raised under Articles 123(2) and 84 EPC against claim 1 of the auxiliary request 9 then on file applied to claim 1 of the auxiliary request 20 then on file, and thus to claim 1 of the present main request.

2.2 Amendments

2.2.1 According to the appealed decision, point 57, auxiliary request 9 then on file did not meet the requirements of

Article 123(2) EPC because "[t]he objections raised in item 12.1 and 45.2 apply to the subject-matter of the present claim 1 correspondingly". Point 45.2 referred to an objection raised in point 28.1 of the appealed decision.

Essentially, the examining division was of the opinion that the subject-matter of claim 1 of auxiliary request 20 then on file represented an unallowable intermediate generalisation because the claimed features relating to the diode-connected drive transistor (T6) and the controller configured to obtain the pixel numbers of the low and high grayscale ranges were only disclosed "in a very specific context, namely of a particular pixel circuit (see figure 3 and the corresponding description) and a particular driving scheme (see figures 4-5D and the corresponding description)" (see appealed decision, point 12.1). In particular, the "claimed subset of features" related to the drive transistor and the sensing transistor cannot be considered in isolation" (appealed decision, point 28.1). The examining division was of the opinion that "amending the pixel circuit with a sensing transistor for performing a diode-connection but without claiming the other circuit elements of figure 3" was contravening the requirements of Article 123(2) EPC (appealed decision, point 45.2).

2.2.2 The board is not convinced by the examining division's reasoning.

(a) First of all, as submitted by the applicant, the features objected to in point 12.1 of the appealed decision under Article 123(2) EPC as "hav[ing] no basis in the original claim 1 as published and [being] thus taken from the description and drawings", "were already included in claim 1 as originally filed in

connection with the claimed controller. Thus, no single features were taken solely from the description" (grounds of appeal, page 27, third and fourth paragraph).

- (b) Secondly, concerning the examining division's objection that the claimed features relating to the diode-connected drive transistor (T6) represented an unallowable intermediate generalisation, the board concurs with the applicant that "the skilled person would consider the respective functions of the circuit elements and the circuit illustrated in Fig.3 of the application as not limiting the invention. It is noted that claim 1 from the beginning on referred to a drive transistor and a sensing transistor, and not to all elements and/or nodes of the circuit. Therefore, the skilled person can omit features of the driver circuit illustrated in Fig.3 that are not relevant for the specific function of the respective circuit element based on the originally filed claim 1. It must be possible to further restrict claim elements or functions of claim elements without necessarily adding all circuit elements of an embodiment described as non-limiting embodiment, e.g. the circuit shown in Fig.3" (grounds of appeal, page 42, first and second paragraph). The appealed decision does not contain convincing reasons as to why the features considered by the examining division to be so essential that their omission would infringe the requirements of Article 123(2) EPC are in fact so essential. Nor can the board identify any such reasons.

2.3 Clarity

- 2.3.1 According to the appealed decision, point 58, auxiliary request 9 then on file did not meet the requirements of

Article 84 EPC because "[t]he objections raised in items 23.2 and 46.2 apply to the subject-matter of the present claim 1 correspondingly".

2.3.2 The examining division raised an objection of lack of clarity essentially against the following expressions of claim 1: "the sensing interval is shortened/lengthened" and "wherein the sensing transistor (T5) is diode-connected with the drive transistor (T6) during the sensing interval".

2.3.3 The board cannot follow the examining division's objections.

In particular, it is clear from the wording of the two last features of present claim 1 that "a shorter sensing interval is selected in case of a bright image compared to a dark image", just as suggested in point 23.2 of the appealed decision, and that a longer sensing interval is selected in case of a dark image compared to a bright image.

Moreover, compared to claim 1 of auxiliary requests 9 and 20 then on file, it has been clarified in present claim 1 that the drive transistor (T6) is diode-connected by the sensing transistor (T5) during the sensing interval. From this functional feature of claim 1, it is sufficiently clear to the skilled person in the field of electronic circuitry which structural technical features are required so "that the sensing transistor enables the drive transistor to be operated in a diode-connected structure", as suggested in the appealed decision, point 46.2.

2.4 It follows from the above that the board does not find the objections under Articles 123(2) and 84 EPC raised in the

appealed decision against the auxiliary request 20 then on file, and thus against the present main request, to be convincing. The board also sees no other reasons why the present claim 1 would define subject-matter extending beyond the content of the application as filed or would be unclear. In conclusion, claim 1 of the present main request meets the requirements of Articles 123(2) and 84 EPC.

3. Remittal

3.1 Since the board considers that the examining division's objections under Articles 123(2) and 84 EPC do not prevail in relation to the present main request, the appealed decision must be set aside.

3.2 The decision under appeal dealt only with the issue of added subject-matter and clarity without considering any of the other requirements of the EPC, especially novelty and inventive step. The significant scope of the pending examination would require the board to go far beyond the primary object of the appeal proceedings to review the appealed decision in a judicial manner (Article 12(2) RPBA 2020). This constitutes a "special reason" within the meaning of Article 11 RPBA 2020. Therefore, the board considers it appropriate to remit the case to the examining division for further prosecution under Article 111(1), second sentence, EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



L. Gabor

R. Bekkering

Decision electronically authenticated