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**Datasheet for the decision
of 22 November 2021**

Case Number: T 3245/19 - 3.4.02

Application Number: 16163975.2

Publication Number: 3190456

IPC: G02F1/13357

Language of the proceedings: EN

Title of invention:
DISPLAY DEVICE

Applicant:
LG Electronics Inc.

Relevant legal provisions:
EPC Art. 54(1), 56, 123(2)

Keyword:
Subject-matter extending beyond the content of the application
as filed (no)
Novelty and inventive step (yes)



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Case Number: T 3245/19 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 22 November 2021

Appellant: LG Electronics Inc.
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 30 July 2019
refusing European patent application No.
16163975.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman B. Müller
Members: F. J. Narganes-Quijano
H. von Gronau

Summary of Facts and Submissions

- I. The applicant lodged an appeal against the decision of the examining division refusing European patent application No. 16163975.2.

The decision was issued after the appellant declined to approve the text proposed for grant by the examining division in the communication under Rule 71(3) EPC dated 12 April 2019 and requested a decision on the state of the file, the mentioned text being based on the then second auxiliary request. In the decision under appeal the examining division held that the subject-matter of claim 1 of the main request and the first auxiliary request then on file extended beyond the content of the application as filed (Article 123(2) EPC).

- II. During the first-instance proceedings reference was made to the following documents:

D1: US 2011/0141403 A1
D2: WO 2010/150883 A1
D3: US 2014/0347864 A1.

- III. In a communication annexed to the summons to oral proceedings the board presented a preliminary assessment of the case. Reference was made to the following document cited in the European search report:

D5: US 2007/0253219 A1.

- IV. In reply to the summons, and by the letter dated 27 September 2021, the appellant submitted, *inter alia*,

claims and amended pages 1 to 24 of the description according to a main request.

V. In reply to a subsequent communication issued by the board, and by the letter dated 15 October 2021, the appellant submitted claims 1 to 15 replacing the previous claims of the main request. The appellant requested as a main request that the decision under appeal be set aside and a patent be granted on the basis of claims 1 to 15 of the main request filed with the letter dated 15 October 2021, pages 1 to 24 of the description of the main request filed with the letter dated 27 September 2021, and Figures 1 to 39 of the application as filed.

VI. Subsequently, the oral proceedings were cancelled.

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

"A display device (100) comprising:

a display panel (110);

a flat frame (130) positioned in the rear of the display panel (110);

a backlight unit (120) positioned between the display panel (110) and the flat frame (130) and providing light for the display panel (110), wherein the backlight unit (120) includes a substrate (122) and a light source (124, 203) mounted on the substrate (122), the substrate (122) forming a strap elongated in a longitudinal direction of the substrate (122);

at least one coupling protrusion (410) formed on the flat frame (130), wherein the coupling protrusion (410) fixes the backlight unit (120) to the flat frame (130); and

at least one inclined protrusion (420) formed on the flat frame (130) and positioned under one end of

the substrate (122), the inclined protrusion (420) having an inclined surface facing in the longitudinal direction of the substrate (122) towards the light source (124, 203) and providing an inclination of the end of the substrate (122)."

The main request also includes dependent claims 2 to 15 referring back to claim 1.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments - Article 123(2) EPC*
 - 2.1 Claim 1 is based on claim 1 as originally filed, together with the embodiment disclosed in paragraphs [0131] to [0135] of the description by reference to Fig. 23 (see also the description of Fig. 5, and in particular paragraph [0074], and the variants disclosed by reference to Fig. 21 and 22).

Dependent claim 2 is based on the embodiment disclosed by reference to Fig. 23, together with Fig. 21, 22, 25, 26, 29 and 30. Dependent claims 3 to 5 are based on Fig. 15B and the corresponding description in paragraph [0125]. Dependent claims 6 to 14 are respectively based on paragraph [0014], paragraphs [0012] and [0013], paragraph [0016], paragraph [0015], paragraph [0017], paragraph [0018], paragraph [0019], paragraphs [0021] and [0122], and paragraph [0121]. And dependent claim 15 is based on Fig. 5 and the corresponding

description, and in particular on paragraphs [0062], [0073] and [0081].

2.2 In the decision under appeal the examining division held in respect of claim 1 of the main and the first auxiliary requests then on file that the claimed subject-matter extended beyond the application as filed (Article 123(2) EPC), and the corresponding objections would also apply to claim 1 of the present main request.

2.2.1 In particular, the opposition division was of the opinion that the feature of claim 1 as filed "a first protrusion formed on the frame and contacted with the backlight unit" consisted, according to dependent claim 2 as filed ("the first protrusion contacts the substrate positioned under the light source"), of the "heat dissipation protuberance" disclosed in the description. This heat dissipation protuberance was omitted in amended claim 1 of both the then main and first auxiliary request, and this omission constituted an unallowable generalization, because the omitted feature was replaced in this claim by "at least one coupling protrusion", i.e. by the "third protrusion" defined in dependent claim 5 as filed, and by "at least one inclined protrusion", i.e. by the "second protrusion" defined in dependent claim 4 as filed, and none of these protrusions constituted the "first protrusion" defined in claim 1 as filed.

The board, however, does not find the arguments of the opposition division persuasive. While the description of the application as filed discloses the provision in the display panel of protuberances or protrusions consisting of heat dissipation protrusions, coupling protrusions and inclined protrusions formed on the

frame and contacted with the backlight unit (see, respectively, protuberances or protrusions 400, 410 and 420 in Fig. 12 to 14, 15A, 15B, and 16 to 38), claim 1 as filed requires "a first protrusion formed on the frame and contacted with the backlight unit", without however specifying the technical function of this protrusion. When reading dependent claims 4 and 5 as filed (with the term "as filed" used in the following text in the meaning of Article 123(2) EPC, i.e. as originally filed) together with claim 1 as filed, the "first protrusion" defined in claim 1 and in dependent claim 2 as filed would correspond, as held by the opposition division, to the heat dissipation protrusion disclosed in the description as filed. However, while this is true in respect of the particular embodiments defined in dependent claims 2 to 4 as filed, this is not necessarily the case of the invention defined in claim 1 as filed because the formulation of the claim is more general and the claimed "first protrusion formed on the frame and contacted with the backlight unit" can - as submitted by the appellant - be identified with the mentioned heat dissipation protrusion, but also with any of the coupling and the inclined protrusions also disclosed in the description as constituting protrusions formed on the frame and contacted with the backlight unit.

In addition to - or alternatively to - these considerations, the board notes that the particular embodiment disclosed in the description of the application as filed by reference to Fig. 23 (see paragraphs [0131] to [0135]) comprises inclined protrusions 420 and coupling protrusions 410, but no heat dissipation protrusions. The fact that no heat dissipation protrusions are required in this embodiment is - as submitted by the appellant - emphasized by the

fact that the heat dissipation protrusions are then disclosed in the subsequent passage of the description (paragraph [0136]) by reference to the modified particular embodiment represented in Fig. 24. Therefore, the embodiment disclosed in the application as filed by reference to Fig. 23 shows that the "first protrusion" defined in claim 1 as filed can be identified with one of the inclined or the coupling protrusions, and not necessarily with the heat dissipation protrusion disclosed in other particular embodiments.

2.2.2 In support of the objection under consideration the examining division also referred to the heat dissipation function of the heat dissipation protuberances as being disclosed as essential in paragraphs [0006] and [0012] of the description of the application as filed. The board, however, cannot follow the examining division's view in this respect either, because the mentioned paragraphs refer to the heat dissipation function only as one "aspect" among the list of different aspects disclosed in paragraphs [0006] to [0026] of the application as filed and also encompassing the technical functions associated with the coupling and the inclined protrusions (see paragraphs [0007], [0010] and [0024]).

Finally, the examining division also objected that the subject-matter of claim 1 of the main and the first auxiliary requests then on file constituted an unallowable generalization, because there was no basis in the application as filed for a light source without a heat dissipating protrusion thereunder, for an inclined protrusion not facing towards a heat dissipation protrusion, and for a coupling protrusion not positioned adjacent to, and separated from, a heat

dissipation protrusion and not inserted into a coupling groove of the substrate. However, none of these objections are persuasive because, as already mentioned above, paragraphs [0131] to [0135] of the description as filed, with reference to Fig. 23, disclose a display device as claimed without a heat dissipating protrusion being provided; in addition, the description as filed discloses coupling protrusions of the type involving insertion into a groove of the substrate only as a particular embodiment (see, for instance, paragraphs [0015], [0020], [0125], and [0143]) and, in addition, the description discloses other variants of the coupling protrusions not involving the insertion into a groove of the substrate (see Fig. 34 and the corresponding description).

- 2.2.3 For these reasons, the board concludes that the fact that claim 1 of the main and first auxiliary requests before the examining division omitted the provision of a heat dissipation protrusion does, in the board's opinion, not constitute a generalization, let alone an unallowable generalization, of the content of the application as filed, and that the same applies to claim 1 of the present main request.

- 2.3 The amendments to the description according to the present main request relate to the adaption of its content to the invention as defined in the present claims (Rule 42(1)(c) EPC) and to the acknowledgement of the prior art (Rule 42(1)(b) EPC).

- 2.4 The board is therefore satisfied that the amendments to the application according to the present main request comply with the requirements of Article 123(2) EPC.

3. *Novelty and inventive step*

3.1 Novelty

3.1.1 Document D5 discloses a display device (abstract, together with Fig. 1 to 3 and the corresponding description) comprising a display panel (LCD display panel 110, see paragraph [0033]), a flat frame (bottom case 180, see paragraph [0034]) positioned in the rear of the display panel, and a backlight unit (unit constituted by components 150, 160, 161 and 162 in Fig. 1 to 3, see paragraphs [0034] to [0037]) positioned between the display panel and the flat frame and providing light for the display panel. The backlight unit includes a substrate (substrate 161 or 162, see paragraph [0037]) and a light source (LED 150, see paragraph [0035]) mounted on the substrate (paragraph [0039]), the substrate forming a strap elongated in a longitudinal direction of the substrate (Fig. 1 to 3). The frame comprises a plurality of protrusions (supports 191 and 192 in Fig. 1 and 2, see paragraph [0042]) formed on the flat frame and positioned under a respective end of the elongated substrate (Fig. 1 and 2), the protrusions constituting coupling protrusions fixing the backlight unit to the flat frame (paragraphs [0041] and [0046]) and also inclined protrusions having an inclined surface constituting an inclined support for the respective end of the substrate (Fig. 1 to 3 and paragraph [0041]).

However, while the inclined surface of the protrusions of document D1 faces in a direction orthogonal to the longitudinal direction of the substrate (Fig. 1 to 3), claim 1 requires that the inclined surface of the inclined protrusion faces in the longitudinal direction of the substrate towards the light source and provides

an inclination of the end of the substrate (see Fig. 21, 22, 25, 26, 29 and 30 of the application, together with the corresponding description).

The display device of claim 1 is therefore new over the display device disclosed in document D5.

3.1.2 The remaining documents on file are less pertinent. In particular, documents D1 to D3 disclose display devices comprising a backlight unit positioned between a display panel and a frame and having a substrate (Fig. 13 of document D1, Fig. 1 and 2 of document D2, and Fig. 1 of document D3), together with means for mechanically coupling the substrate to the frame (see elongated substrate 51 and flat frame FM in Fig. 1 to 3 of document D1, elongated substrate 2 and flat frame 6 in Fig. 3 to 5 of document D2, and elongated substrate 22 and frame 18 in Fig. 2 of document D3), but none of them disclose an inclined protrusion formed on the flat frame under one end of the substrate and having an inclined surface facing towards the light source(s) of the backlight unit and providing an inclination of the end of the substrate as claimed.

3.1.3 Therefore, the subject-matter of claim 1, and also that of dependent claims 2 to 15, is new over the available documents of the prior art (Articles 52(1) and 54(1) EPC).

3.2 Inventive step

In the board's view, the closest state of the art is represented by the disclosure of document D5.

The distinguishing feature of claim 1 over document D5 identified in point 3.1.1 above ensures - as the

arrangement of document D5 already does - an efficient mechanical coupling of the substrate of the backlight unit to the flat frame (see paragraphs [0007], [0010] and [0024] of the description as filed). The objective problem solved by the claimed subject-matter over the display device of document D5 can therefore be seen as providing an alternative to the display device of document D5.

None of the documents on file - in particular, none of documents D1 to D3, see point 3.1.2 above - discloses or suggests the claimed coupling arrangement between the substrate of the backlight unit and the flat frame.

Therefore, the subject-matter of claim 1 of the main request does not result in an obvious way from the documents of the prior art on file (Article 56 EPC). The same conclusion applies to dependent claims 2 to 15 by virtue of the reference in the claims to the device defined in claim 1.

4. In view of these considerations, the board concludes that the application documents according to the present main request and the invention to which it relates meet the requirements of the EPC within the meaning of Article 97(1) 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 with the order to grant a patent in the following version:
 - claims: No. 1 to 15 of the main request filed with the letter dated 15 October 2021;
 - description: pages 1 to 24 of the main request filed with the letter dated 27 September 2021; and
 - drawings: Figures 1 to 39 of the application as filed.

The Registrar:

The Chairman:



L. Gabor

B. Müller

Decision electronically authenticated