

***Case No COMP/M.5414 -  
SAMSUNG SDI /  
SAMSUNG  
ELECTRONICS / SMD***

Only the English text is available and authentic.

**REGULATION (EC) No 139/2004  
MERGER PROCEDURE**

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Article 6(1)(b) NON-OPPOSITION  
Date: 23/01/2009

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## COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 23.1.2009

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PUBLIC VERSION

MERGER PROCEDURE  
ARTICLE 6(1)(b) DECISION

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

### **To the notifying parties:**

Dear Sir/Madam,

**Subject: CASE NO COMP/M.5414 – SAMSUNG SDI/ SAMSUNG SEC/ SMD  
Notification of 15 December 2009 pursuant to Article 4 of Council  
Regulation No 139/2004<sup>1</sup>**

1. On 15 December 2008, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 ("Merger Regulation") by which the undertakings Samsung Electronics Co. Ltd. ("SEC", South Korea) and Samsung SDI Co. Ltd. ("SDI", South Korea) acquire within the meaning of Article 3(1)(b) of the Merger Regulation joint control of the undertakings Samsung Mobile Display Co. Ltd. ("SMD", South Korea), which had previously been solely controlled by SDI, by way of purchase of shares. SEC, SDI and SMD are together referred to below as "the parties".

### **I. THE PARTIES**

2. **SEC** is engaged in the design, development, manufacture and sales of a wide range of products in the area of electronics and information technology. SEC is organized in four main units: Digital Media, Telecommunication Network, Semiconductors and LCD. The LCD business produces panels for TVs, digital information displays, notebook PCs and desktop monitors, as well as various display panels for mobile products. SEC is Korea based and has a share listing in the United Kingdom.
3. **SDI** focuses on the digital display and energy businesses. Currently, SDI consists of four business divisions: Panel Display Panel (PDP), Rechargeable Battery, Mobile Display and Cathode Ray Tube (CRT). SDI has a share listing on the Korean Stock Exchanges. While SEC is its largest shareholder in SDI with a 20.4% shareholding, the

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<sup>1</sup> OJ L 24, 29.1.2004 p. 1.

parties submit that this stake does not confer any control over SDI. In particular, SEC does not have any veto right over SDI's strategic business decisions.

4. **SMD** is a currently wholly-owned subsidiary of SDI, into which SDI has spun off its activities in the area of small and medium LCD panels, and organic light-emitting diodes ("OLEDs"), including both AM-OLEDs and PM-OLEDs<sup>2</sup>.

## **II. THE CONCENTRATION**

5. The proposed transaction concerns the acquisition of joint control by SEC and SDI of SMD, which had previously been solely controlled by SDI. It will take place by way of purchase of shares in SMD by SEC in exchange for both assets and cash. The assets to be contributed by SEC include its small and medium size LCD activities as well as R&D for AM-OLED.
6. SMD will have sufficient resources to operate independently from its parent companies, and perform activities beyond one specific function within the parent companies' business activities, on a lasting basis. It will therefore perform all the functions of an autonomous economic entity and operate on the market as a full-function joint venture.
7. Thus, the transaction constitutes a concentration within the meaning of Article 3(4) of the Merger Regulation.

## **III. COMMUNITY DIMENSION**

8. The undertakings concerned have a combined aggregate world-wide turnover for the year 2007 of more than EUR 5 000 million<sup>3</sup> (SEC: EUR 77 400 million, SDI: EUR 5 600 million). Each of SEC and SDI has a Community-wide turnover for the year 2007 in excess of EUR 250 million (SEC: EUR [...] million, SDI: EUR [...] million), without achieving more than two-thirds of their aggregate Community-wide turnover within one and the same Member State.
9. The notified operation therefore has a Community dimension within the meaning of Article 1(2) of the EC Merger Regulation.

## **V. COMPETITIVE ASSESSMENT**

### **1. Relevant markets**

*Relevant product market - screen sizes and technologies*

10. The Parties submit that displays can be distinguished on the basis of the size of the display, given that different technologies are underlying different sizes of displays. Display panel technology differs between, on the one hand, small and medium size panels used for portable/handheld devices, for example in cameras, PDA (personal digital assistants), mobile phones, portable navigation devices, portable TVs and smaller

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<sup>2</sup> AM stands for 'Active Matrix' and PM for 'Passive Matrix'. These are the two possible technologies for OLED displays.

<sup>3</sup> Turnover calculated in accordance with article 5(1) of the Merger Regulation and the Commission Consolidated Jurisdictional Notice of 10 July 2007.

computer monitors and, on the other hand, larger panels used for example in large screen TVs and wall monitors. The Parties consider that small and medium panels are those with a screen size of less than 9 inches and submit that this threshold is widely recognized in the industry.

11. The parties consider that this delineation is backed by the fact that technologies are partially different for small and medium size panels compared to larger displays. Although LCD (Liquid Cristal Display) are used for all sizes of displays, OLED (Organic Light Emitting Diode) is the sole (increasingly important) alternative technology for small and medium size panels, while for large panels, the other technologies are plasma and (increasingly less) Cathode Ray Tubes (“CRT”) technology.
12. However, at the small and medium level, the parties consider that all displays are part of the same relevant market, regardless of the technology used (LCD or OLED).
13. LCD is a type of display technology in which the electrical and optical properties of a liquid crystal substance in neutral states of liquid and solid are applied into displays. Liquid crystals of organic molecules initially have a regular structure like a crystal but the molecule alignment changes when an electrical current is passed through. LCD, unlike OLED, is a passive display that does not produce its own light but acts as a light modulator which needs an independent backlight.
14. OLED is a flat display technology, produced by placing a series of organic thin films between two conductors. When electrical current is applied, a bright light is emitted. Because OLEDs produce/emit light they do not require a backlight. This potentially means that OLEDs could be made very thin and very power efficient compared to LCD (which requires a white backlight). As mentioned above, there are two types of OLEDs: active-matrix OLEDs (AM-OLEDs) and passive-matrix OLEDs (PM-OLEDs). Compared to AM-OLED, PM-OLED displays require a relatively larger amount of electric power, affecting its lifespan, which is shorter than AM-OLED. In this respect a PM-OLED may be considered as a “lower-range” type of display compared to the new-generation of AM-OLED displays.
15. According to the parties, AM-OLED displays will over time substitute LCD and PM-OLED displays in applications. While LCD is currently the most widely used technology within the “small/medium” size display market especially for portable/handheld devices, AM-OLED is expected to evolve rapidly as the technology matures and production expands.
16. Therefore, the parties define the relevant product market as the market for the development and manufacturing of small and medium sized displays of less than 9 inches, regardless of the underlying technology.
17. There are no precedent Commission decisions that assessed the relevant market for the kind of displays offered by the parties.
18. The market investigation generally confirmed the possibility to define a small and medium size displays market, regardless of the underlying technology: only one respondent suggested a narrower relevant product market definition segmented by technology (LCD/AM-OLED/PM-OLED) and most of the respondents corroborated the parties' view regarding the foreseeable increasing share of AM-OLED displays to the detriment of LCD, while PM-OLED's market share should in any case remain marginal.

Moreover, although no clear size threshold emerged from the investigation, the 9 inches threshold submitted by the parties appeared appropriate to several respondents and lies in the medium range of the various sizes suggested by the respondents (ranging from 7 to 15 inches).

*Relevant product market - applications*

19. The definition of the relevant product market based on applications could appear as a possible alternative definition.
20. Small and medium size displays are used in a wide range of applications, among which Personal Digital Assistant (PDA) displays, Personal navigation devices (PND) displays, Automotive Monitor Displays, Digital still cameras displays, Digital video cameras displays, Portable Media Player (PMP) displays, MP3 Displays and Mobile phones displays.
21. As the parties do not think that a definition of the relevant product market based on application would be appropriate, they submit that the market for small and medium size displays encompassing all applications constitutes a single relevant product market.
22. However, this was considered as a possible alternative definition by some respondents to the market investigation. They notably submitted that although small and medium size displays are mostly commoditized, some customization remains necessary for each application.

*Conclusion on the relevant product market*

23. There are significant elements supporting the delineation of a small and medium size displays market, which can be manufactured either with LCD or OLED displays. However, (i) the precise size threshold seems more difficult to establish and (ii) alternative narrower market definitions subdivided either by application or by technology could be considered.
24. Under any alternative the proposed transaction does not raise any competition concerns. Therefore, for the purpose of the present transaction, the exact definition of the relevant product market for small and medium size displays can be left open.

*Geographic market*

25. The parties submitted that the relevant geographic market for development and manufacturing of small and medium sized displays is worldwide. In addition to low transportation costs, this would notably be borne out by the fact that while manufacturers of panel displays and manufacturing are concentrated in Asia<sup>4</sup>, their customers are multinational entities and notably worldwide OEMs.
26. The market investigation clearly confirmed this view since none of the respondents indicated a narrower geographic market definition.

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<sup>4</sup> The top ten companies in the market for the small and medium size displays are either Japanese, Korean Chinese or Taiwanese: SEC, SDI, Sharp, TMDisplay, Epson, AU Optronics, Hitachi, TPO Displays, Wintek and Sony.

27. In view of these elements and as confirmed by the investigation, it can be concluded that the relevant geographic market for the small and medium size displays is worldwide.

## 2. Competitive assessment

### 2.1. Horizontal relations

#### *Overall market for small and medium sized displays*

28. According to the information submitted by the parties and based on third party research<sup>5</sup>, considering an overall market for the development and manufacturing of small and medium sized displays at the worldwide level, i.e. displays of up to 9 inches but regardless of application or technology, the parties' combined market share in 2007 would be [10-20%] (SEC: [5-10%], SDI: [5-10%]). There are a number of competitors active in that market, among which Sharp [10-20%] market share), TMDisplay [5-10%], Epson [5-10%], AU Optronics [5-10%], Hitachi [5-10%] and TPO Display [5-10%].
29. The market investigation did not bring any element to challenge the market shares reported by the parties. Even though it cannot be excluded that based upon a different threshold than 9 inches for the delineation of the small and medium size displays market, market shares would have been partially different, it appears that the change would not be such to significantly alter the parties' market position, notably because SEC, SDI and their competitors generally compete on the same application markets, including for larger screen sizes. The latter conclusion is reinforced by the fact that none of the respondents that proposed different thresholds (as reported above, from 7 to 15 inches) raised concerns.
30. The proposed transaction therefore does not raise competition concerns in a worldwide market encompassing all small and medium sized displays.

#### *Market definition by technologies*

31. According to a narrower definition of the relevant market based on different display technologies at the worldwide level, the parties' combined market share would not give rise to any affected market. The only markets in which the parties' combined share would exceed 15% would be the market for display based on the AM-OLED and PM-OLED technologies, in which SEC currently does not offer any displays.
32. However, while SDI's market share in the AM-OLED market was [80-90%] in 2008, SEC has also developed R&D capabilities in the AM-OLED technology. The transaction could therefore theoretically lead to the elimination of a potential competitor in this market and therefore have anti-competitive effects.
33. Nevertheless, although the likelihood that SEC would enter the market for AM-OLED displays and grow into an effective competitive force is uncertain, there is in any event a sufficient number of other existing or potential competitors which could maintain sufficient competitive pressure after the merger.

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<sup>5</sup> Report by research company Display Search, LLC, 2008: Q1'08 Quaterly Small/Medium Shipment and Forecast Report. Figures do not include PM-OLED displays, which represent less than 1% of LCD and AM-OLED sales.

34. The market investigation suggested that the AM-OLED sub-segment is competitive and that SDI's high current market share reflects a first entrant's advantage rather than a possibly lasting situation, since the market is widely expected to rapidly evolve within the coming years<sup>6</sup>. None of the respondents considered that SDI has a key technology, which its current or potential competitors would be unable to offer.
35. Although the number of companies active in the manufacturing of AM-OLED display is currently limited (SDI, Chi Mei EL and LG Electronics), the market investigation suggested that, in view of its superior performances, (i) the market share of AM-OLED displays in the market for small and medium size display is expected to increase to the detriment of LCD displays and that (ii) several companies currently only active in LCD technology are capable of and considering to start manufacturing AM-OLED displays within the short/medium term. This was actually the case in 2008 when Chi Mei EL and LG Display entered this market and achieved their first sales, while SDI was virtually the only active company active in this market in 2007 (consequently with a market share above [90-100%], which confirms the rapid market evolution. Some respondents also mentioned that they had already realised investments in view of launching production soon. No respondent expressed concerns about non-coordinated effects in a hypothetical market for AM-OLED only and clients expect to have a sufficient number of suppliers of AM-OLED displays post-transaction.
36. As regards PM-OLED displays, although SDI's market share is estimated by the parties at [10-20%] in 2007, the transaction would not lead to any increment since SEC has never produced PM-OLED. SDI's market share in this technology does therefore not raise any competitive concern, as this has been confirmed by the market investigation.
37. Therefore, the proposed transaction does not raise competition concerns in relation to a hypothetical market for small and medium size displays based on AM-OLED or PM-OLED technology.

*Market definition by application*

38. According to a narrower definition of the relevant markets based on different applications at the worldwide level, the parties' combined market share would only give rise to an affected market in relation to mobile phones displays ([10-20%] market share including captive sales<sup>7</sup>, SDI: [10-20%]; SEC: [5-10%]), a market in which the joint venture would become the leading supplier.
39. However, various strong competitors are active in this market and will exercise a competitive constraint on the joint venture. Among those competitors are Sharp ([10-20%] market share), Epson [10-20%] and TMDisplay [5-10%]. Moreover, the market investigation did not raise concerns with regard to this hypothetical market. Therefore, the proposed transaction does not raise competition concerns if the relevant market is delineated along applications.

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<sup>6</sup> Parties submit that according to the market analyst iSupply, by 2014, worldwide AM-OLED market should grow by a compound annual growth rate of more than [80-90%].

<sup>7</sup> Excluding captive sales, the parties' market share would be lower.

## *2.2. Vertical relations*

40. As regards vertical relationships, SEC and SDI are active in markets upstream and downstream of the market for the manufacture and development of small and medium size displays. They could therefore be customers or suppliers of SMD. SEC is active in the area of integrated circuits/semiconductors which are used for displays devices<sup>8</sup>, and SMD's panel technology could be used in a number of products manufactured by SEC.
41. These two vertical links could give rise to four potential foreclosure effects - i.e. both input and customer foreclosure for each of the two vertical relationships - although there would be affected markets only if the manufacture and development of AM-OLED displays is assumed as a distinct relevant market.
42. As regards customer foreclosure in relation to the vertical link between (i) the market for the manufacture and development of small and medium size displays using AM-OLED technology and (ii) the different markets for applications using small and medium size displays in which SEC is active and in which SMD's displays could be used, SEC could possibly purchase displays preferably from SMD and therefore abandon existing relationships with their current suppliers (given that SDI is already the parent company of SMD, such a behaviour would not be related to the proposed transaction). However, there is no application market in which SEC has significant market shares or market power and could consequently be considered as a key route for SMD's competitors in the market for the manufacture of small and medium size AM-OLED displays. Therefore, potential customer foreclosure would have limited impact on competition and does therefore not raise competition concerns, as this was confirmed by the market investigation.
43. As regards input foreclosure in relation to the vertical link between (i) the market for the manufacture and development of small and medium size displays using AM-OLED technology and (ii) the different markets for applications using small and medium size displays in which SEC is active and in which SMD's displays could be used, the market investigation confirmed that, in spite of its significant market share in the manufacture of AM-OLED displays, the joint venture would have no ability to implement input foreclosure. This notably stems from the fact that it does not have any must-have products or technology to which it could deny access. Therefore, competitors of SEC will not be foreclosed from access to an essential input as they can purchase AM-OLED displays from current competitors of the joint-venture and in the future from widely expected new entrants. The market investigation moreover indicated that the joint venture would be unlikely to have the incentive to engage in input foreclosure, as respondents indicated that such a strategy would not be expected to be financially viable, given the significant investments necessary for production of small and medium size displays based on AM-OLED technology. The proposed transaction therefore does not raise competition concerns in relation to potential input foreclosure.

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<sup>8</sup> The Display Driver integrated circuit is a component that sends the drive signal and data to the display panel via multi high voltage level signal so that words and images can be displayed on the screen. Also, the Display Driver IC allows programmable display features, for example self-adjustment of the screen brightness or the illumination of only those areas that need light.



44. As regards customer foreclosure in relation to the vertical link between (i) the market for the manufacture of integrated circuits / semiconductors used for displays, in which SEC is active and (ii) the market for the manufacture and development of small and medium size displays using AM-OLED technology, SMD could possibly purchase these electronic components preferably from SEC. However, in spite of SMD's current market share in the market for the manufacture and development of AM-OLED displays - as mentioned above - it does not constitute a key route for the sale of integrated circuits / semiconductors, since (i) these components do not appear specific to AM-OLED displays and (ii) in any case, SEC's competitors could still sell components to other competitors of SMD in the market for AM-OLED displays and possibly to future entrants. The absence of concerns in relation to this vertical link was confirmed by the market investigation.
45. As regards input foreclosure in relation to the vertical link between (i) the market for the manufacture of integrated circuits / semiconductors used for displays and (ii) the market for the manufacture and development of small and medium size displays using AM-OLED technology, although SEC could limit sales of components to SMD's competitors, it would not have the ability to foreclose them from access to an essential input. First, according to the information submitted by the parties and based on the April 2008 Gartner Report<sup>9</sup>, SEC's market share in a worldwide market for the manufacture of integrated circuits / semiconductors used for displays would be [10-20%], giving it a limited market power. Second, there is no indication that SEC manufactures any must-have component for the manufacture of AM-OLED displays. Finally, none of the respondents to the market investigation raised any concern in relation to this matter.
46. The transaction does consequently not raise vertical concerns in relation to the links between the market for the manufacture and development of small and medium size displays and vertically related markets.

### **3. Result**

47. In the light of all the foregoing factors and given that the market investigation has not revealed any concerns with regard to the competitive impact of the concentration, the Commission finds that the proposed transaction does not raise competition concerns.

## **VI. CONCLUSION**

48. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation (EC) No 139/2004.

For the Commission  
(Signed by)  
Neelie KROES  
Member of the Commission

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<sup>9</sup> Gartner, Dataquest Insight: LCD Driver IC Competitive Landscape, Worldwide, 2007, published April 2008.