

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD.,
BEIJING BOE DISPLAY TECHNOLOGY CO., AND
MOTOROLA (WUHAN) MOBILITY TECHNOLOGIES
COMMUNICATION CO., LTD.,
Petitioners

v.

ELEMENT CAPITAL COMMERCIAL COMPANY PTE. LTD.,
Patent Owner

IPR2023-00808
U.S. PATENT NO. 8,164,267

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. §42.107(a)**

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TABLE OF EXHIBITS

Exhibit	Description
2001	Declaration of Dr. Aris Silzars
2002	Curriculum Vitae of Dr. Aris Silzars
2003	United States District Courts — National Judicial Caseload Profile, “ https://www.uscourts.gov/statistics-reports/federal-court-management-statistics-march-2023 ”
2004	Explanation of Selected Terms for United States District Courts — National Judicial Caseload Profile, “ https://www.uscourts.gov/statistics-reports/federal-court-management-statistics-march-2023 ”
2005	Plaintiff’s Motion for Leave to Effect Service by Alternate Means, <i>Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.</i> , Case No. 2:22-cv-0118-JRG (EDTX)
2006	Order Granting Motion for Leave, <i>Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.</i> , Case No. 2:22-cv-0118-JRG (EDTX)
2007	Joint Motion for Entry of Agreed Docket Control Order, <i>Element Capital Commercial Company PTE. Ltd. v. BOE Technology Group Co., Ltd. et al.</i> , Case No. 2:22-cv-0118-JRG (EDTX)
2008	USPTO Memo regarding Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (“Fintiv Memo”)
2009	Achintya K. Bhowmik, et al., “Mobile Displays: Technology and Applications,” 404, 406, 408-410 (2008)
2010	Francis W. Sears, “Electricity and Magnetism,” 91-93 (1958)

2011	Jun. Souk et al., "Flat Panel Display Manufacturing," 13-14 (2018)
2012	Larry Lynch et al., "Electronic Materials Handbook," 538-540, 552 (1989)
2013	Paul Horowitz et al., "The Art of Electronics," 830 and 833-836 (1989)
2014	Shunsuke Kobayashi et al., "LCD Backlights," 14-15 (2009)
2015	Jiun-Haw Lee, et al., "Introduction to Flat Panel Displays," 78-79, 212-213 (2008)
2016	Amal Ghosh, et al., "Short Course S-1: Fundamentals of OLEDs," s-1/80 (2004)

Element Capital Commercial Company PTE. LTD. (“Element” or “Patent Owner”) submits this Preliminary Response to the Petition (“Pet.”) seeking *inter partes* review of claim 1 U.S. Patent No. 8,164,267 (“the ’267 Patent,” EX-1001), filed by BOE Technology Group Co., Ltd., Beijing BOE Display Technology Co., and Motorola (Wuhan) Mobility Technologies Communication Co., Ltd. (collectively, “Petitioners”).

I. SUMMARY OF ARGUMENT

The Board should deny the Petition because the Petition fails to establish a reasonable likelihood of success with respect to the challenged claim 1 under the Petition’s Ground 1 and Ground 2.

II. TECHNICAL BACKGROUND OF THE ART

At the time of the invention of the ’267 Patent, display devices contained various types of components, including (1) semiconductor devices such as circuits formed by thin film transistors (TFTs) utilized for controlling the operation of the display devices, and (2) wirings such as power lines, data lines, and scan lines for transmitting signals to the semiconductor devices and/or the pixels. EX-2001, 11. The operations and configurations of the semiconductor devices and the wirings in display devices greatly differ. EX-2001, 11.

The wirings in the display devices are conductors that exhibit resistance, which in turn cause voltage drop as the wirings get farther from the source. EX-2001, 12. The resistance in a wiring, such as a power line, may be affected by several factors. EX-2001, 12. For example, the wiring resistance is directly proportional to the length of the wiring. EX-2001, 12. That is, the longer the length of the power supply line, the greater the wiring resistance in the power supply line. EX-2001, 12; EX-1008, [0005]-[0006], [0011]; EX-1010, [0032]-[0036], [0138], [0140], [0156]; EX-1011, 3:20-28.

Further, at the time of the '267 Patent's invention, there existed two distinct types of display devices based on the type of material utilized in the display devices to emit light: (1) liquid crystal display ("LCD") devices; and (2) electroluminescent (EL) display devices. EX-2001, 16. LCD devices and EL display devices are dissimilar in both structure and function, and the technologies and design methods used for one are substantially different from the other. EX-2001, 16-17. For example, LCD devices use liquid crystal to control the passage of light, and require a backlight (a lamp unit, etc.) in operation. EX-2001, 17. EL display devices, on the other hand, use electroluminescent materials that emit light when an electric current is applied. EX-2001, 17. In other words, the EL display devices are self-

luminous and, unlike LCD devices, do not require a backlight. EX-2001, 17. Furthermore, the pixels in LCD devices are voltage controlled whereas the pixels in EL display devices are current controlled. EX-2001, 17. In view of these differences, the technologies and design methods used for one are substantially different from those used for the other. EX-2001, 17-18.

Organic light-emitting diode (OLED) display devices are a type of EL display device. OLED display devices include multiple OLED pixels formed by organic materials that emit light when an electric current is applied thereto. Thus, OLED display devices are self-emissive and do not require a backlight. EX-2001, 19; EX-1001, 1:16-29. An active-matrix OLED (AMOLED) display device is a specific type of OLED display device that uses an active-matrix backplane that includes an element such as a capacitor to control the OLED pixels. EX-2001, 19.

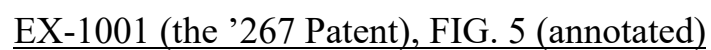
III. BACKGROUND OF THE '267 PATENT

The '267 Patent is directed to an electro-optical device that is an AMOLED display device. EX-1001, 4:49-51; EX-2001, 32. The '267 Patent provides an inventive wiring method for electric power lines disposed adjacent to a pixel matrix or pixels that allows the aperture ratio of the pixel to be increased while maintaining a pixel matrix with the same pixel pitch. EX-1001, 2:11-13; EX-2001, 32.

As described in the '267 Patent, a light-emission layer of an AMOLED display device may be formed of a material corresponding to each color (i.e., red, green, and blue). EX-1001, 1:21-29, 1:45-46, 1:51-56; EX-2001, 33. The display device is operated with greatly different power consumptions corresponding to each color, and thus the power lines associated with different pixels of different colors may have different widths in order to accommodate the different power consumptions. EX-1001, 1:30-39, 1:51-56; EX-2001, 33. Accordingly, in conventional wiring layouts, "it is difficult to maintain a large aperture ratio [for the pixels] while maintaining the electric power line with a suitable width for each color under the condition that the pixel matrix is formed with the same pixel pitch." EX-1001, 1:56-2:9; EX-2001, 33.

In order to solve these problems, the '267 Patent provides a novel wiring method for electric power lines that supply power to pixels in OLED display devices. EX-1001, 2:10-13; EX-2001, 34. To this end, the plurality of power lines include a first power line in a first direction (e.g., a column direction) of the pixel matrix and a second power line in a second direction (e.g., a row direction) of the pixel matrix, with the first power line electrically connected to the second power line through a plurality of contact holes. EX-1001, 7:45-61, 8:51-54; EX-2001, 34. FIG. 5,

F i g . 5



As can be seen above, a green pixel ('G' in FIG. 5) is provided with a first power line (annotated in red) and a second power line (annotated in green). EX-2001, 36. The first power line has a first portion extending in a first direction (intersecting the second power line) and a second portion extending in a second direction (parallel to the second power line) that intersects the first direction. EX-2001, 36. The second power line extends in the second direction and overlaps at least a part of the second portion of the first power line, which is electrically connected to the second power line through a plurality of contact holes ('h2' in FIG. 5; annotated in blue). EX-1001, 8:51-64; EX-2001, 36.

By this arrangement of overlapping portions of the power lines connected by plural contact holes, the inventors of the '267 Patent recognized that wiring breakage can be prevented and wiring resistance in the power lines can be reduced. EX-1001, 8:60-64; EX-2001, 37. Further, the occurrence of non-uniformity of luminance due to insufficient current supply to a particular power line can be suppressed, and the occurrence of cross-talk can be reduced. EX-1001, 9:5-14; EX-2001, 37.

IV. PROSECUTION HISTORY OF THE '267 PATENT

During prosecution of U.S. Patent Application No. 12/219,592, from which the '267 Patent issued, an Examiner's Interview was conducted on June 22, 2011.

EX-1005, 109, 113. There, it was agreed that the applied references failed to disclose or render obvious the features of new independent claims 9 and 11, as later submitted in an Amendment dated July 5, 2011. *See* EX-1005, 105-11. The amended claims were then allowed. EX-1005, 116-124.

The Petition incorrectly implies that, during the June 2011 interview, the Applicant agreed that certain claim features are described by a reference, Miyazawa:

In this interview the *“examiner pointed out that [Miyazawa] apparently disclosed... all the features as claimed including the proposed amended portion ‘the plurality of contact holes disposed corresponding to an intersection of the first power line and the second power line and disposed in the pixel’... **The Applicant’s representative ‘fully agreed with the examiner’s analysis’**...* This indicates that the alleged point of novelty over the Miyazawa reference was not the existence of multiple power lines or multiple contact holes connecting those power lines.”

Pet., 17-18 (quoting EX-1005, 115) (emphasis added).

During the Examiner’s Interview, however, the agreement was not about what Miyazawa allegedly described with respect to claimed features. Instead, as recorded in the Amendment dated July 5, 2011, the Applicant and Examiner agreed that “the applied references fail to disclose or render obvious the features of new independent

claims 9 and 11.” EX-1005, 110. The Applicant further clarified that “claims 1-8 are canceled **without prejudice to, or disclaimer of**, the subject matter recited therein.” *Id.*, 109.

V. SUMMARY OF ASSERTED REFERENCES

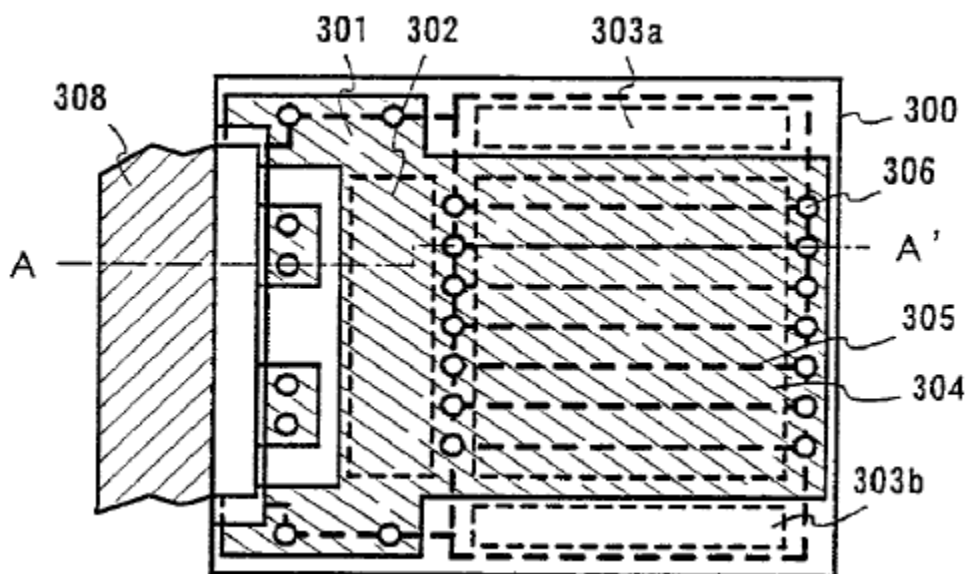
A. U.S. Patent Application Publication No. 2001/0015618 (“Yamazaki”)

Yamazaki is directed to EL display devices that aim to provide homogenized quality of image. EX-1008, [0014]; EX-2001, 39. Specifically, Yamazaki recognized that the homogeneity of the quality of the image reduces due to voltage drop in the current supply line of an EL display device, which originates in increased wiring resistance due to the incremental length of the current supply line across the EL display device. EX-1008, [0005]-[0013], FIG. 2; EX-2001, 40.

In order to solve this problem, Yamazaki provides EL display devices that are constituted by a first substrate, having a luminous element formed thereon, and a second substrate. EX-1008, [0015]-[0016]; EX-2001, 41. The second substrate is a hardened large printed wiring board (PWB) that has a level of hardness which does not bend or curve to some amount of impact. EX-1008, [0016]; EX-2001, 41.

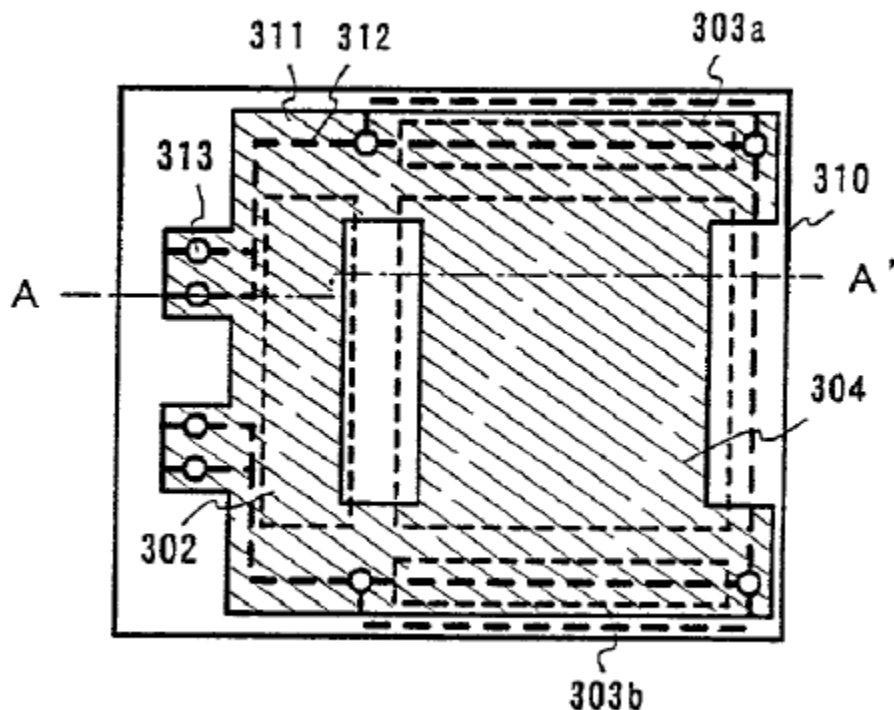
Yamazaki describes an “Embodiment Mode” for manufacturing an EL display device with reference to FIGS. 3A-3C. EX-1008, [0035]-[0036]. FIGS. 3A-3B illustrate top views of the EL display device, and FIG. 3C illustrates a cross-sectional view taken along a cutout line “A-A” in FIGS. 3A-3B. EX-1008, [0036].

Referring to FIG. 3A of Yamazaki, reproduced below, “wiring 301” for aiding a current supply line 305 is formed on a first PWB 300. EX-1008, [0038], EX-2001, 43. The “wiring 301” is made of a low resistant material such as copper foil, and is connected in parallel to the current supply line 305 in order to reduce the apparent wiring resistance of the current supply line 305. EX-1008, [0038]-[0039]; EX-2001, 43. The “wiring 301” is connected to the current supply line via a contact portion 306. EX-1008, [0038]-[0039]; EX-2001, 43. Yamazaki describes the “wiring 301” as a “current supply auxiliary line,” in view of its role of aiding the current supply line *by reducing resistance* thereof. See EX-1009, [0037]; EX-2001, 43. Yamazaki does not provide any further description of this wiring 301 or suggest that it supplies current to pixels. EX-2001, 43.



EX-1008 (“Yamazaki”), FIG. 3A

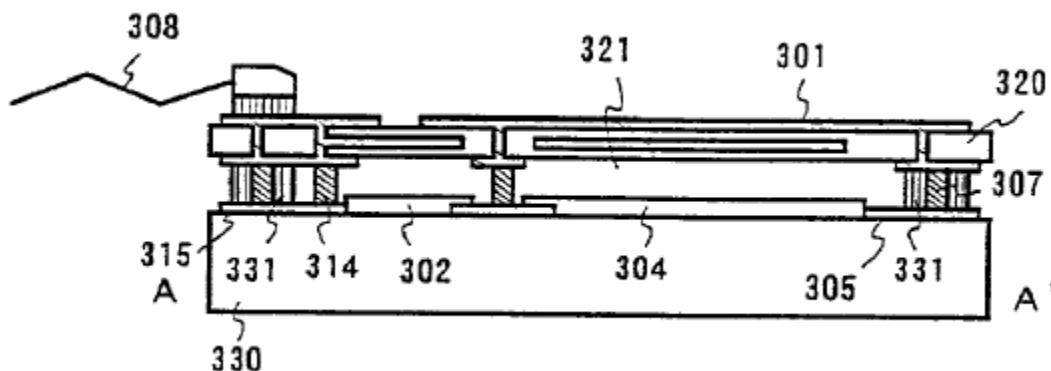
Similarly, referring to FIG. 3B of Yamazaki, reproduced below, a “wiring 311” for aiding a gate control wiring is formed on a second PWB 310. EX-1008, [0040]; EX-2001, 44. This “wiring 311” is also made of a low resistant material such as copper foil, and is connected in parallel to the gate control wiring 312 in order to reduce the apparent wiring resistance of the gate control wiring. EX-1008, [0041]-[0042]; EX-2001, 44. As with its description of the wiring 301, Yamazaki does not suggest any additional function of the wiring 311 beyond reducing the apparent wiring resistance of its corresponding line (the current supply line 305 for wiring 301, and the gate control wiring 312 for wiring 311). EX-2001, 44.



EX-1008 (“Yamazaki”), FIG. 3B

Yamazaki further describes that the first PWB 310 and the second PWB 320 are first adhered to each other to form a PWB 320, and the adhered boards (i.e., PWB 320) are bonded with an element-formed substrate 330. EX-1008, [0043]; EX-2001, 45. The element-formed substrate 330 has a source driver circuit 302, a gate driver circuits 303a-303b, a pixel portion 304, a current supply line 305, and a gate control wiring 312 formed thereon. EX-1008, [0038], [0041]; EX-2001, 45. FIG. 3C of Yamazaki, reproduced below, illustrates a cross-sectional view of the EL display

device, with the PWB 320 (i.e., the PWB 300 and PWB 310 adhered together) bonded to the element-formed substrate 330. EX-2001, 45.



EX-1008 (“Yamazaki”), FIG. 3C

Notably, unlike the current supply line 305, Yamazaki does not describe or suggest that the wiring 301 is utilized for providing current to the EL element in the pixel portion. EX-2001, 46. Additionally, beyond its description that the wiring 301 runs in parallel with the current supply line 305, Yamazaki provides no further disclosure of the layout or geometry of the wiring 301. EX-2001, 46.

B. U.S. Patent Application Publication No. 2001/0043168 (“Koyama 168”)

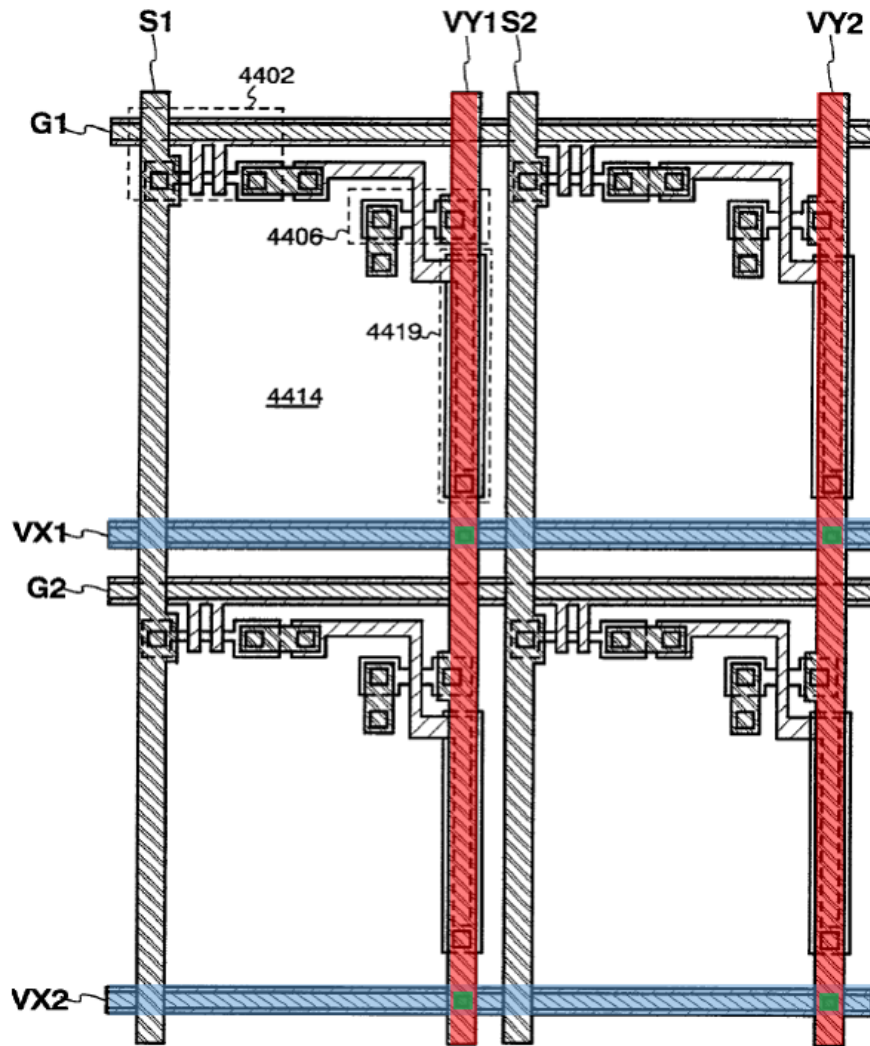
Koyama 168 is directed to alleviating potential drop due to wiring resistance of a power supply line in an active-matrix OLED display device. EX-1010, [0052]-[0053]; EX-2001, 48. Specifically, Koyama 168 recognizes the problem of electrical potential drop caused by wiring resistance due to the length and the

position of the power supply line. EX-1010, [0032]-[0036], [0044]-[0050], FIG. 23, FIG. 35, and FIG. 41; EX-2001, 48.

In order to solve this problem, Koyama 168 explains that it is “necessary” to make the wirings as short as possible. EX-1010, [0156]; EX-2001, 49. To this end, Koyama 168 discloses a configuration to reduce the length of the power supply lines of a pixel portion in order to mitigate the influence of potential drop. EX-1010, [0137]-[00140]; EX-2001, 49. Specifically, Koyama 168 provides a small number of power supply lines collected together in one unit, and connected to an external input terminal through a driver region. EX-1010, [0156]-[0157]; EX-2001, 49. Koyama 168 explains that such a configuration reduces the length of wirings of the power supply lines and, as a result, decreases the wiring resistance and the influence of potential drop around the pixel portion. EX-1010, [0138], [0140], [0156]-[0157]; EX-2001, 49.

Koyama 168 also provides additional power supply lines in parallel to the gate signal lines in a wiring layer forming the gate signal lines, so as to form a matrix-like arrangement of power supply lines. EX-1010, [0163]-[0164]; EX-2001, 50. As shown in FIG. 3, reproduced below, Koyama 168 provides the additional power supply lines VX1 and VX2 (annotated in blue below) extending in one direction and

connected to respective power supply lines VY1 and VY2 (annotated in red below)
via a contact hole (annotated in green below). EX-1010, [0162], FIG. 3; EX-2001,
50.



Koyama 168 (EX-1010), FIG. 3

Notably, as shown above, the power supply lines VX1/VX2 and the power supply lines VY1/VY2 each extend in only one direction and are connected by a single contact hole per pair, on the limited overlapping portions therebetween. EX-2001, 51. In other words, Koyama 168 uses only one contact hole because the power supply lines VX1/VX2 are perpendicular to the power supply lines VY1/VY2, and the overlapping portions can each accommodate only one contact hole. EX-2001, 51.

C. U.S. Patent No. 6,124,604 (“Koyama 604”)

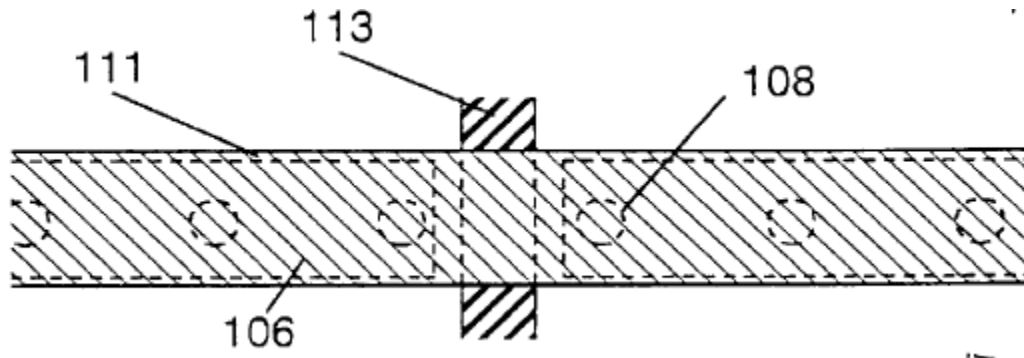
Koyama 604 is directed to semiconductor devices of LCD display devices that aim to provide wiring lines with reduced electric resistance. EX-1011, 1:8-15, 4:56-5:7; EX-2001, 53.

Specifically, Koyama 604 recognizes problems of signal quality issues in high-frequency signals when the signals are transmitted by wiring lines in the circuits of LCD display devices. EX-1011, 2:37-4:53; EX-2001, 54. The wiring lines here refer to data lines and scanning lines of driving circuits 903 and 904 of the LCD display devices. EX-1011, 2:53-58; EX-2001, 54. The data lines and scanning lines introduce high electric resistance when their lengths are long, and introduce capacitances between parallel-arranged wiring lines when high-frequency signals

are applied thereto. EX-1011, 3:20-28, 3:39-42; EX-2001, 54. The capacitances formed between the wiring lines or between wiring lines and the opposed electrode, in combination with the high resistance of each wiring line, causes deterioration of a transmission signal waveform. EX-1011, 3:57-67; EX-2001, 54. When the transmission signal waveform is distorted (e.g., rounded) to a large extent, a delay may occur in the operation timing of a circuit, or erroneous video information may be transmitted to pixels, thereby resulting in erroneous operation or disordered images. EX-1011, 4:1-4; EX-2001, 54.

In order to address the above-mentioned problems, Koyama 604 provides a semiconductor device including a circuit using a thin-film transistor (TFT) having an active layer that is constituted of crystalline silicon film provided on a substrate having an insulating surface, wherein at least a part of the wiring lines associated with the circuits is connected in parallel to an auxiliary wiring line that is provided with an interlayer insulating film interposed in between. EX-1011, 4:65-5:7; EX-2001, 55. FIG. 1C of Koyama 604, reproduced below, illustrates a structure of a semiconductor device that includes the aforementioned configuration. EX-2001, 56. As shown, a wiring line 111 is connected in parallel to an auxiliary wiring line 106

via a plurality of contact holes 108. *See* also EX-1011 at 5:55-58, FIGS.1A-B; EX-2001, 56y.



EX-1011 (“Koyama 604”), FIG. 1C

Koyama 604 explains that this structure can greatly reduce the electric resistance of wiring lines, thereby reducing the waveform distortion (e.g., waveform rounding) in the wiring lines. EX-1011, 6:58-65; EX-2001, 57.

Notably, the subject matter of Koyama 604 is mainly related to LCD devices, which are substantially different from the active-matrix OLED display devices in Koyama 168. EX-2001, 58. As explained above in Section II, LCD devices require a backlight to operate, while OLED display devices are self-luminescent and do not require a backlight. EX-2001, 58. Also, the pixels in LCD devices are voltage controlled whereas the pixels in OLED display devices are current controlled. EX-2001, 58. Further, the subject matter of Koyama 604 is related to configurations of

semiconductor devices, which differ from those of wirings for pixel portions. EX-2001, 58.

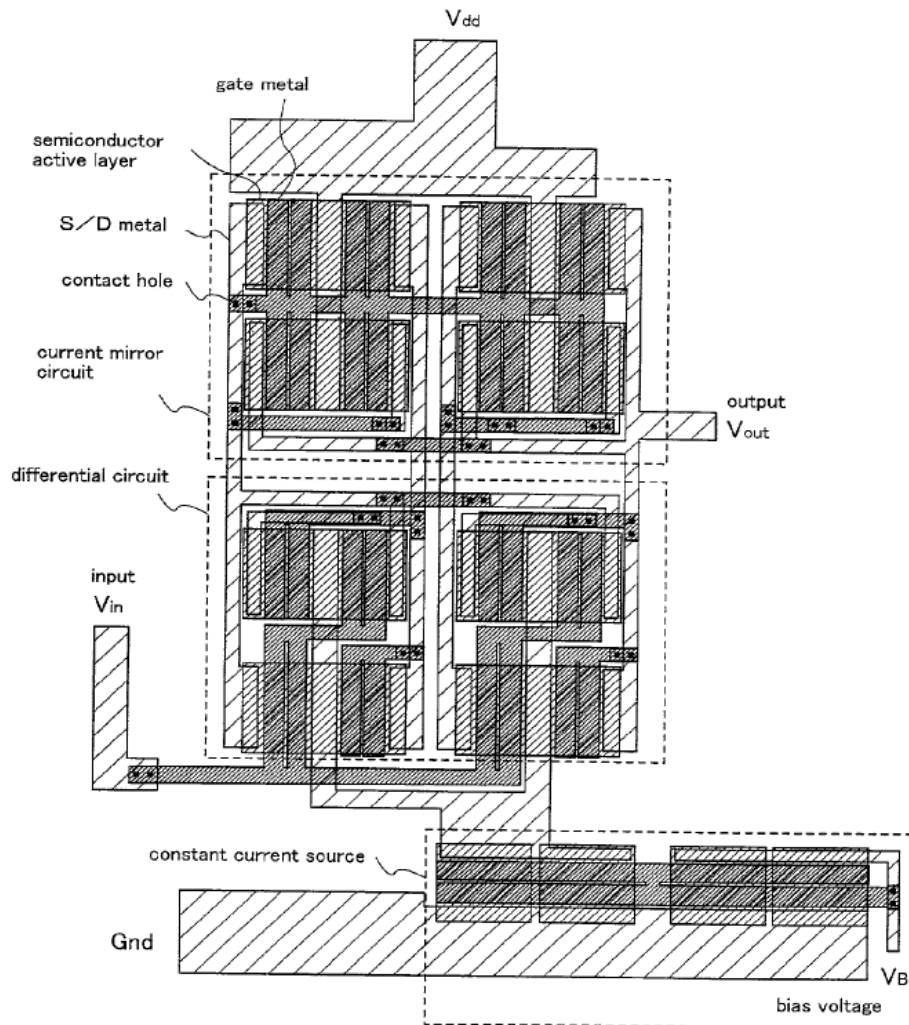
Additionally, Koyama 604 describes connecting wirings of semiconductor devices in parallel to a respective auxiliary wiring line, but does not suggest (1) connection between *power* lines, or (2) increasing the length of a line to include a “protrusion” (Pet., 60-61) for accommodating a plurality of contact holes. EX-2001, 59. In fact, Koyama 604 does not describe or suggest any “protrusion” on any wiring line, let alone a “power line protrusion” for accommodating multiple contact holes, as alleged by the Petitioners. Pet., 60-61; EX-2001, 59. For example, in Koyama 604, contact holes are formed on the overlapping portions of the wiring line 111 and the *parallel* auxiliary wiring line 106, which are two straight wiring lines connected in *parallel*. See EX-1011, FIG. 1C; EX-2001, 59. Thus, Koyama 604 does not describe or remotely suggest any “power line protrusion.” EX-2001, 59.

D. U.S. Patent Application Publication No. 2002/0053671 (“Koyama 671”)

Koyama 671 is directed to semiconductor devices in EL displays with improved analog buffer circuitry. EX-1012, [0002], [0055]; EX-2001, 61. Specifically, Koyama 671 recognizes problems of conventional analog buffer

circuits which have varying characteristics of thin-film transistors (TFTs). EX-1012, Abstract, [0031]; EX-2001, 61. In order to solve these problems, Koyama 671 provides an analog buffer circuit including a differential circuit, a current mirror circuit, and a constant current source, with particular arrangements of polycrystalline TFTs composing the circuits, to thereby reduce differences in the respective TFTs and provide an analog buffer circuit that has a small variation. EX-1012, [0053]; EX-2001, 62.

Koyama 671 illustrates an example of its analog buffer circuit in FIG. 12, and an example arrangement of TFTs of this circuit in FIG. 13. EX-1012, [0083]-[0084], [0170], [0179]; EX-2001, 63. Koyama 671 explains that the analog buffer circuit includes two sets of differential circuits and current mirror circuits connected in parallel, and each of the differential circuits and current mirror circuits includes a plurality of TFTs. EX-1012, [0176], [0178], FIG. 12; EX-2001, 63. Referring to FIG. 13, reproduced below, portions of the components in the current mirror circuit, such as a semiconductor metal film (illustrated as “S/D metal” in FIG. 13) and gate metal, may be connected to each other through contact holes. EX-2001, 63.



EX-1012 ("Koyama 671"), FIG. 13

Notably, the subject matter of Koyama 671 is directed to the configuration and manufacturing of analog buffer circuits in semiconductor devices, and is not related to wiring configurations of power lines of pixels in display devices. EX-2001,

64. As set forth above in Section II, the configurations of semiconductor devices differ from the configurations of wirings for a pixel portion. EX-2001, 11, 64.

Further, Koyama 671 describes only one power supply line Vdd, and does not describe or suggest connecting the power supply line Vdd to any other component via a contact hole. EX-1012, FIG. 13; EX-2001, 65. Furthermore, although Koyama 671 describes contact holes, these contact holes are utilized for bonding gate metal with semiconductor metal, but are not for connecting multiple power lines. EX-1012, FIG. 13; EX-2001, 65. Accordingly, Koyama 671 does not describe or suggest (1) connection of power lines, or (2) increasing the length of the power lines to include any “protrusion” for accommodating a plurality of contact holes. Namely, Koyama 671 does not describe or suggest any “power line protrusion” for accommodating multiple contact holes, as alleged by the Petitioners. Pet., 61; EX-2001, 65.

In addition, Koyama 671 does not describe utilizing the contact holes for reducing wiring resistance. EX-2001, 66. As described above, Koyama 671 is directed to solving problems of varying characteristics of TFTs in an analog buffer circuit. EX-1012, Abstract, [0031]; EX-2001, 66. Koyama 671 does not describe or suggest any configuration of power lines for reducing the wiring resistance in the

power lines, let alone utilizing a plurality of contact holes for reducing wiring resistance. EX-2001, 66.

VI. A PERSON OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) would have had at least a Master’s degree in electrical engineering, physics, or a related field, and at least two years of relevant work experience in the field of display device technology. EX-2001, 29. Additional education can remedy lack of work experience and vice versa. EX-2001, 29.

VII. ARGUMENT

The Petition should be denied at least because the applied references do not anticipate or render obvious claim 1 of the ’267 Patent.

A. Ground 1– Claim 1 is Not Anticipated under 35 U.S.C. § 102 By Yamazaki, and is Not Rendered Obvious Under 35 U.S.C. § 103 By Yamazaki

Ground 1 of the Petition fails to establish a reasonable likelihood that the challenged claim 1 of the '267 Patent is anticipated or rendered obvious¹ by Yamazaki. EX-2001, 67.

The Petition relies on Yamazaki for an alleged teaching of all features of claim 1 of the '267 Patent. Pet., 25-48. Petitioners' reliance, however, is insufficient for at least the following reasons.

First, Yamazaki does not describe a “first power line” as recited in claim 1. EX-2001, 68. For example, Yamazaki does not disclose that the “current supply auxiliary line 301” (Petitioners' alleged “first power line” of claim 1) is a “power line” that supplies current to light emitting elements of the display. EX-2001, 68.

¹ Petitioners allege that Yamazaki renders obvious every limitation of claim 1 (Pet., 25, 27, 30, 33, 35, 37, 40, 43, 45) but fails to provide any obviousness analysis as required by *KSR*. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). As such, Petitioners have not set forth a *prima facie* case of obviousness in its Petition for any claim feature with respect to Yamazaki.

Second, Yamazaki does not suggest that the auxiliary line 301 “has a first portion extending in a first direction and a second portion extending in a second direction that intersects the first direction,” as required by the claim. EX-2001, 69. At most, Yamazaki only states that the auxiliary line 301 is parallel to the current supply line 305. EX-2001, 69.

Thus, Petitioners have not shown a reasonable likelihood that all features of claim 1 of the '267 Patent are disclosed or rendered obvious by Yamazaki. EX-2001, 70.

1. Yamazaki Fails to Disclose a “First Power Line” in Addition to a “Second Power Line” as Claimed

As recognized by Petitioners, a “power line” as used in the '267 Patent claims supplies current to light-emitting elements. Pet., 37, 40; EX-2001, 71. Yamazaki discloses, as its power line, a current supply line 305 for supplying current to respective light-emitting (or EL) elements. EX-1008, [0037]; EX-2001, 71. The Petition maps this current supply line 305 to the claimed “second power line.” Pet., 40-41.

For the “first power line,” Petitioners cite to Yamazaki’s “current supply auxiliary line 301.” Pet., 38-40. Yamazaki, however, does not disclose that the

auxiliary line 301 supplies current to the EL elements. EX-2001, 72. Unlike the current supply line 305, which Yamazaki describes as “a wiring for supplying a current... to each EL element,” Yamazaki only suggests that the auxiliary line 301 functions to aid the current supply line by “reduc[ing] the apparent wiring resistance of the current supply line.” EX-1008, [0037]; EX-2001, 72. At no point does the reference provide any configuration or description that the auxiliary line 301, in addition to reducing the resistance on the current supply line 305, supplies current to the EL elements. EX-2001, 72.

Nevertheless, the Petition brushes over this deficiency by conflating the described function of the current supply line 305 with that of the auxiliary line 301:

Like the '267 Patent's power line, Yamazaki's current supply auxiliary lines supply current. *See id.* at [0037] (“**[T]he current supply line is a wiring for supplying a current, which flows to an EL element, to each EL element.**”); *see also id.* at [0038] (“[T]he current supply auxiliary line 301 is electrically connected...to the current supply line 305 via the conductor 307.”); *id.* at [0039] (“Thus, the current supply auxiliary line 301 that is made of a low resistant material such as a copper foil is formed on the first printed wiring board 300.”).

Pet., 39 (emphasis added); EX-2001, 73.

That is, Petitioners simply cite to Yamazaki's description of the current supply lines 305, which passes *through* the pixel matrix 304 formed on the same substrate 330 (EX-1008, [0038], FIG. 3A), without any explanation as to how or why this description is applicable to the entirely *different* auxiliary line 301, which passes in parallel *above* the pixel matrix 304 (EX-1008, [0038], [0043]-[0044], FIG. 3C). EX-2001, 74. At most, the Petition points out that the current supply line 305 and the current supply auxiliary line 301 are electrically connected. But this does not indicate, imply, or otherwise necessitate that the circuit is configured such that current running through the auxiliary line 301 is supplied to the EL elements 304. EX-2001, 75. Indeed, Yamazaki provides no circuit schematic and is silent as to where and how the lines 301 and 305 are connected to a power supply, ground, other components, etc. EX-2001, 75.

All that is disclosed by Yamazaki is that the current supply line 305—NOT the auxiliary line 301—supplies current to the EL elements, and that the auxiliary line 301 reduces the apparent wiring resistance in the current supply line 305. EX-1008, [0037]; EX-2001, 76. Neither Yamazaki nor the Petition offers anything more. As such, Petitioners have not shown a reasonable likelihood that “each and every element of the claimed invention,” including the first power line, is disclosed in

Yamazaki and “arranged or combined in the same way as in the claim.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (quoting *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008)).

2. Yamazaki Fails to Disclose a “First Power Line” including First and Second Portions Extending in Different Directions as Claimed

Even if, *arguendo*, the auxiliary line 301 is considered a power line, Yamazaki does not disclose that the auxiliary line 301 includes multiple portions extending in different directions. EX-2001, 79.

Claim 1 requires that the first power line have “a first portion extending in a first direction and a second portion extending in a second direction that intersects the first direction.” With reference to the Petition’s annotated FIG. 3A of Yamazaki, reproduced below, Petitioners allege that the large polygonal area highlighted in green depicts Yamazaki’s “current supply auxiliary line 301” as having a first portion extending in a first direction and a second portion extending in a second direction. Pet., 39-40. Petitioners’ reliance on high-level box diagram features for an alleged teaching of the actual geometry and layout of wiring is contradicted by Yamazaki itself, and constitutes clear error. EX-2001, 80.

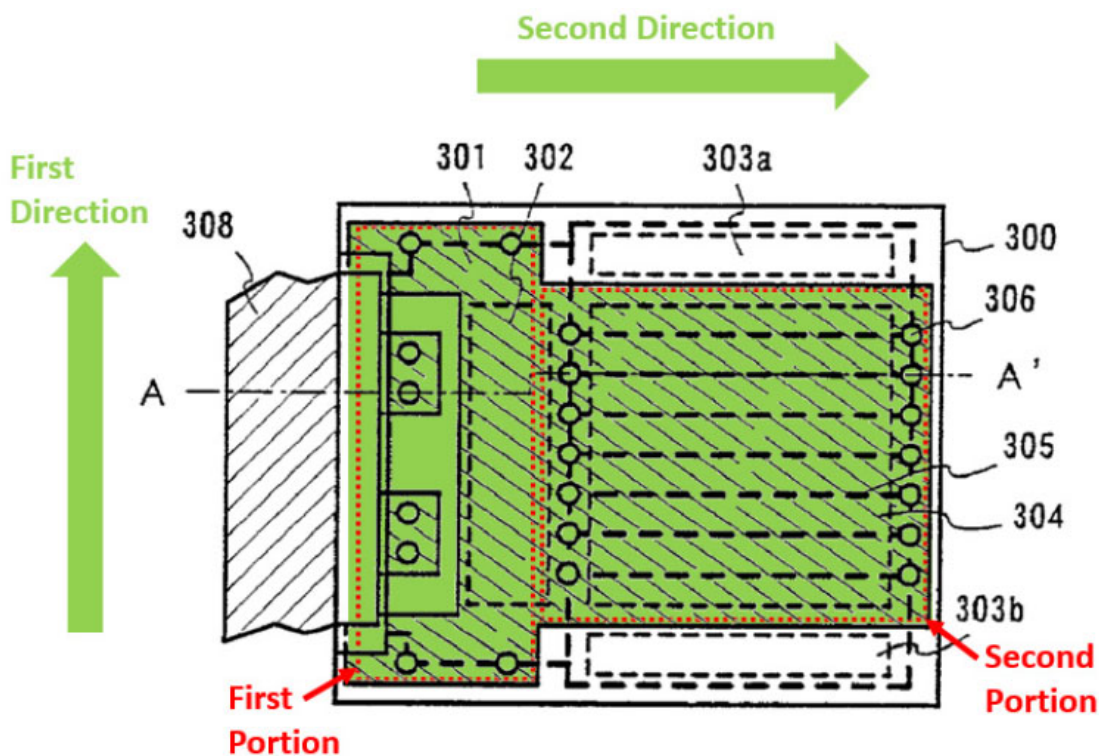


FIG. 3A of Yamazaki (Annotated by Petitioners at Pet., 49)

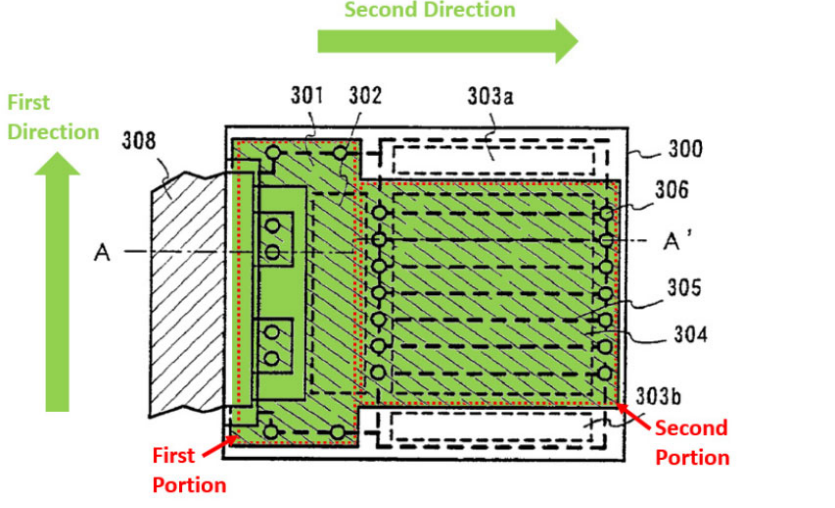
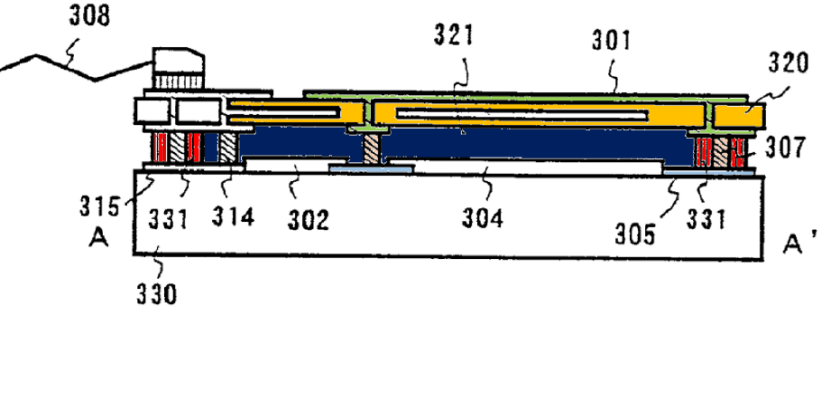
FIG. 3A corresponds to an “EL display device” (Pet., 31; EX-1008, [0036]) including a pixel array (pixel portion 304) interposed by an array of intersecting power lines 305, scan lines (extending between gate driver circuits 303a/b, Pet., 29), and data lines (extending from source driver circuit 302, Pet., 32). *See also* Pet., 31 (pixel portion “includes data lines that intersect scan lines”); EX-2001, 81. To put in perspective, the EL display device of FIG. 3A corresponds to at least the size of the display portion of a television, as shown in Yamazaki’s FIG. 8A. EX-1008, [0089]-[0092]; EX-2001, 82. Petitioners’ allegation that the polygon region

annotated in green above, which covers all of the pixel array 304 and more, is one contiguous wire or “power line” that stretches across the entirety of a display region of a television and beyond is, on its face, implausible and contrary to the plain and ordinary meaning of a “line,” particularly in the context of the '267 Patent.² EX-2001, 82-89.

Notably, Yamazaki itself leaves no doubt that the outsized polygonal area of FIG. 3A (annotated in green) is not the actual layout or geometry of the auxiliary line 301. EX-2001, 90. FIG. 3A, as annotated by Petitioners, depicts this area as extending contiguously from the alleged “First Portion” to the alleged “Second Portion,” and completely overlapping the source driver circuit 302. EX-2001, 91. The cutout line A-A' for the cross-sectional view of FIG. 3C overlaps this purported contiguous multi-portion line. EX-2001, 91. To accept Petitioners' allegation that FIG. 3A depicts the geometry of the auxiliary line 301 would therefore require that

² To the extent that Petitioners' allegation that the outsized region constitutes a power “line” is accepted by the Board, this region would not be a “line” in accordance with the plain and ordinary meaning of the term in the context of the '267 Patent. EX-2001, 82-89.

the cross-section along the cutout (A-A') include a contiguous auxiliary line 301 extending horizontally from above the pixel array 304 across the source driver circuit 302 and beyond. EX-2001, 91. As shown in FIG. 3C (reproduced below as annotated by Petitioner), however, the line 301 does not extend across the source driver circuit 302 and is not contiguous from the purported "Second Portion" to the purported "First Portion":

FIG. 3A of Yamazaki (EX-1008) Annotated by Petitioners; Pet., 40.	
FIG. 3C of Yamazaki (EX-1008) Annotated by Petitioners; Pet., 45 (further annotated herein)	

Rather, FIG. 3C shows a clear endpoint for the alleged auxiliary line 301 (annotated green by Petitioners) at the cross-section, that does not continue across the purported "First Portion" (further annotated in purple below):

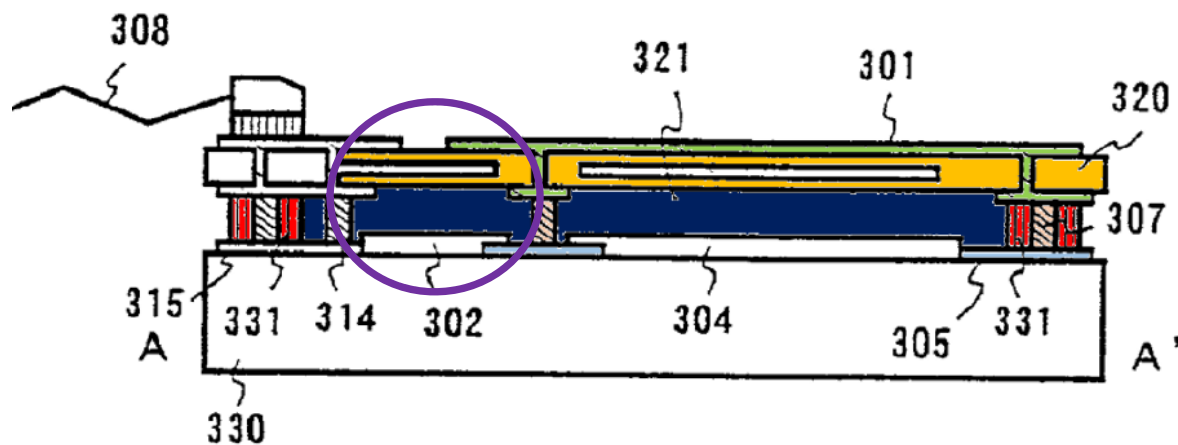
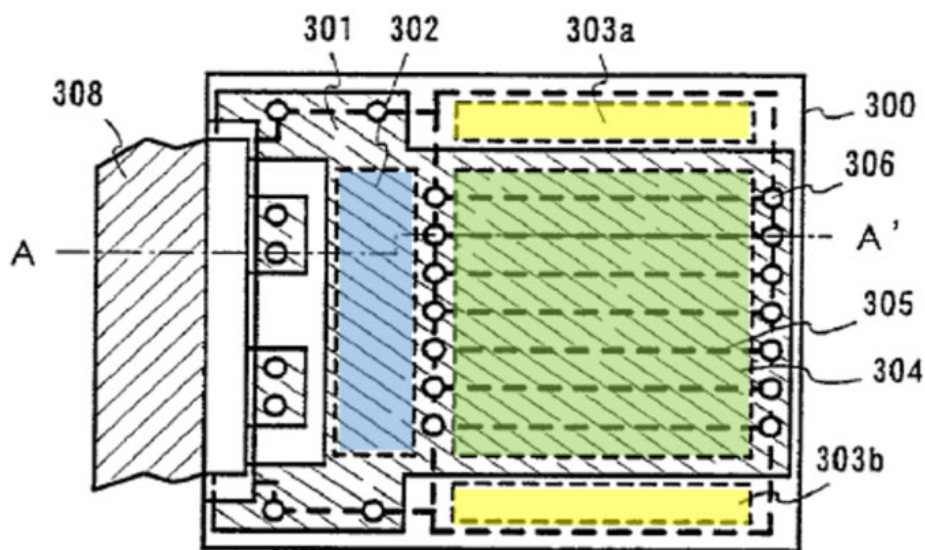


FIG. 3C of Yamazaki Annotated by Petitioners (Pet., 45), Further Annotated
EX-2001, 92.

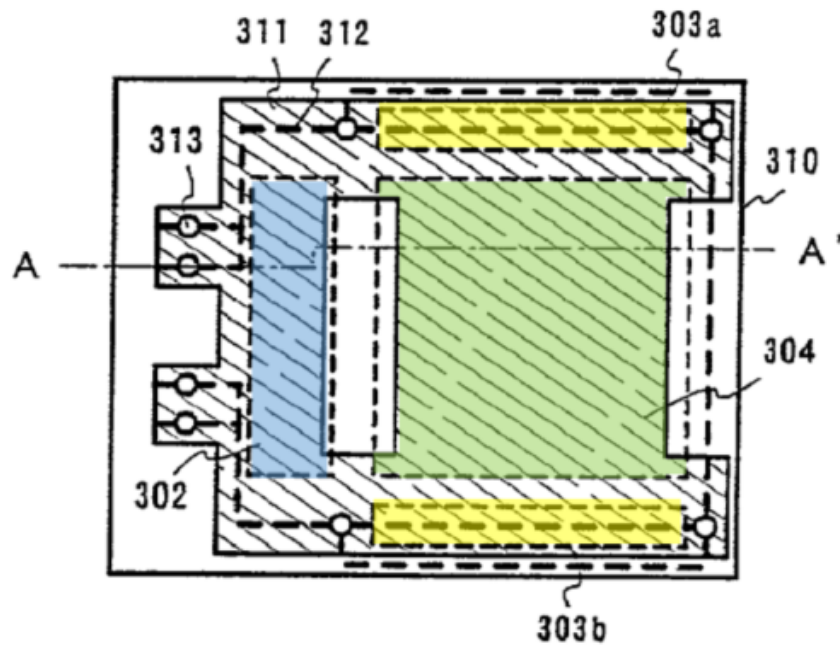
A POSITA would have therefore understood that the green annotated region of FIG. 3A is not one contiguous wire or otherwise a depiction of the actual geometry of the auxiliary line 301. EX-2001, 93. Indeed, the auxiliary line 301 is provided in parallel with the plural power lines (current supply lines 305) (EX-1008, [0037]) and the Petition itself recognizes that the auxiliary line 301 is not a single line, but rather plural lines (Pet., 39: "Like the '267 patent's power lines, Yamazaki's current supply

auxiliary lines supply current” (emphasis added)). EX-2001, 93. How these auxiliary lines 301 are arranged and in what directions they each extend are not shown in FIG. 3A. EX-2001, 93.

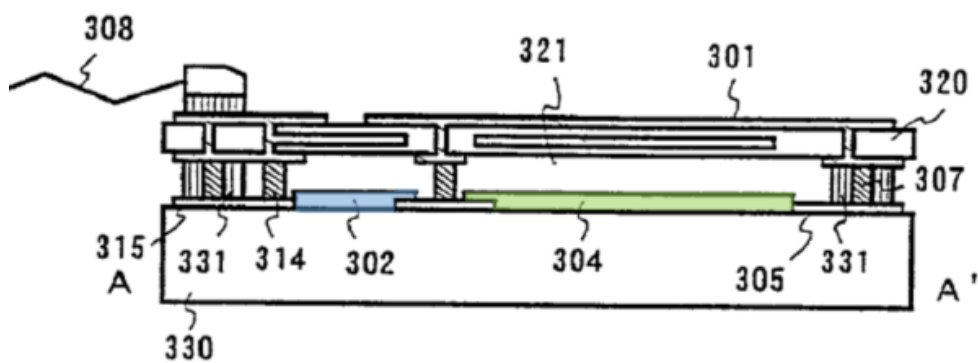
FIG. 3A not conveying the actual configurations, constituent parts, and physical geometries of the display device components is evidenced not just by the auxiliary line 301, as discussed above, but by every other depicted component. EX-2001, 94. For example, FIGS. 3A-3C of Yamazaki, reproduced below, illustrate the “source driver circuit 302,” “gate driver circuits 303a-303b,” and “pixel portion 304” in the form of boxes (annotated in blue, yellow, and green, respectively). EX-1008, [0038]; EX-2001, 94.



EX-1008 ("Yamazaki"), FIG. 3A (Annotated)



EX-1008 ("Yamazaki"), FIG. 3B (Annotated)



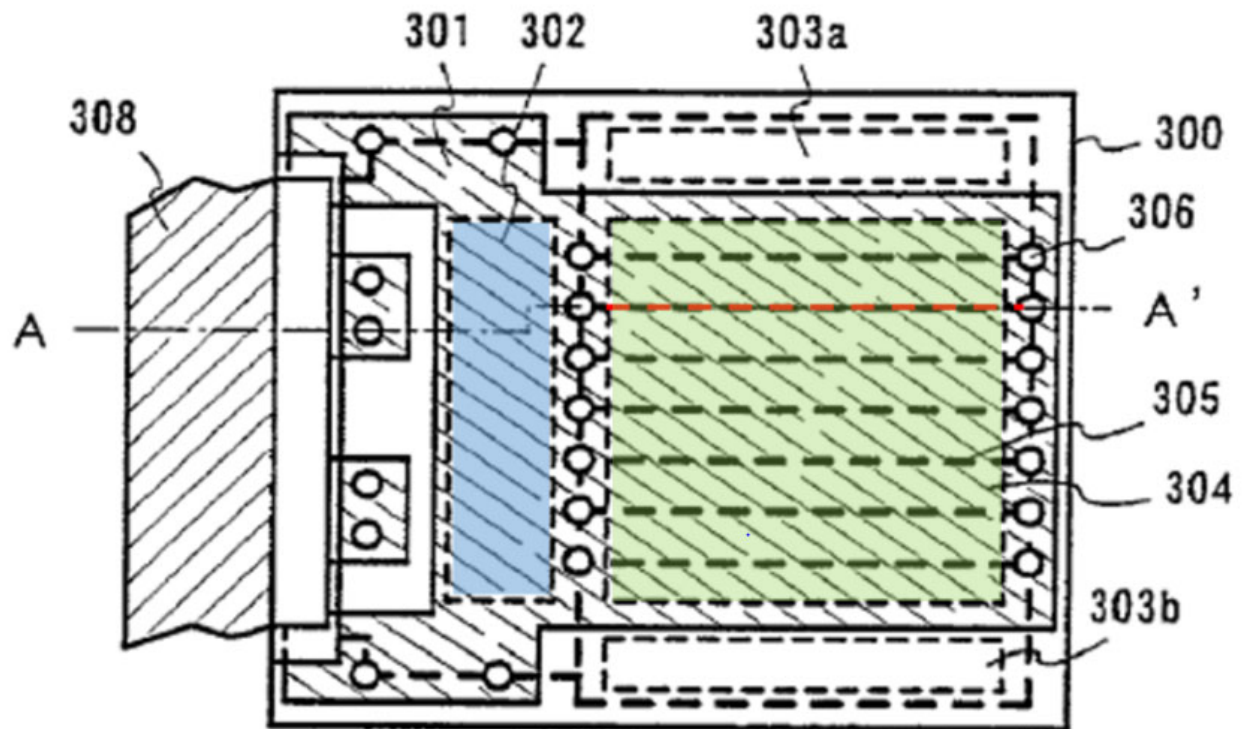
EX-1008 ("Yamazaki"), FIG. 3C (Annotated)

These components, however, are not simply boxes covering the corresponding areas depicted in the figures, but include a complexity of distinct, interconnected

constituent elements of various sizes and shapes, not shown in FIG. 3A. EX-2001, 95. The source driver circuit 302, for example, includes multiple transistors (N channel TFT and P channel TFT). EX-1008, [0052], FIG. 4B, FIG. 6, FIG. 7, [0052]. EX-2001, 95. Similarly, the pixel portion 304 includes an array of pixels that contain various transistors, capacitors, etc. EX-1008, [0007], [0052], FIG. 2, FIG. 4B, FIG. 6, FIG. 7; EX-2001, 95. The actual area, configuration, size, and shape of the constituent elements of the display device components are not reflected by the high-level polygonal regions depicted in the box diagrams of FIGS. 3A and 3B. EX-2001, 95.

Additional inconsistencies and omissions between the polygonal areas of the box diagrams of FIGS. 3A and 3B and the cross-sectional view of FIG. 3C further highlight that the box diagrams do not depict the geometries and physical layouts of constituent components. EX-2001, 96.

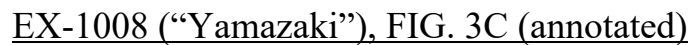
For example, FIG 3A (annotated below) illustrates one of the current supply lines 305 (annotated in red) that exactly overlaps the cutout line A-A' extending across the pixel portion 304 (annotated in green):



Yamazaki (EX-1008), FIG. 3A (annotated)

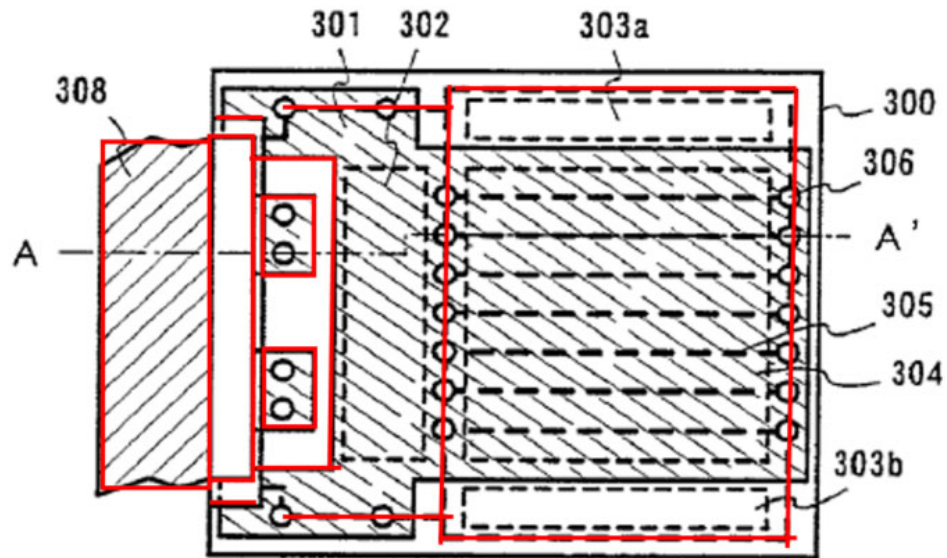
EX-2001, 97.

Conversely, the cross-sectional view (FIG. 3C, reproduced below) does not have the current supply line 305 going across the pixel portion at the cutout A-A':

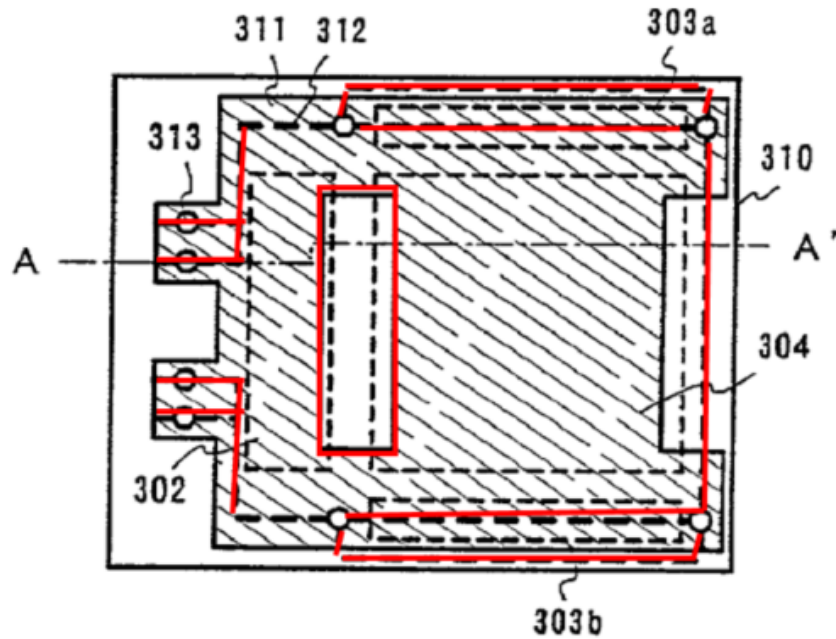


Further, Yamazaki describes that the first PWB 300 (illustrated in FIG. 3A) and the second PWB 310 (illustrated in FIG. 3B) are adhered to form the PWB 320, and the PWB 320 is then bonded with the element-formed substrate 330. EX-1008, [0043]; EX-2001, 99. Like with the auxiliary line 301 in FIG. 3A, FIG. 3B illustrates the “gate control line 311” as an outsized polygonal region covering most of the second PWB 310, including at the cutout line A-A’, yet there is no corresponding depiction of such an extensive and contiguous “gate control line 311” illustrated in FIG. 3C. EX-2001, 99.

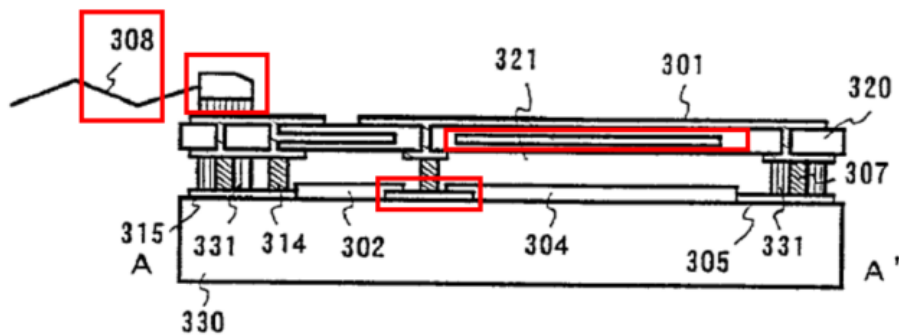
Furthermore, many components illustrated in FIGS. 3A through 3C (e.g., by circles, polygons, dashed lines, etc.) are not labeled or described in Yamazaki, as annotated in red below:



EX-1008 ("Yamazaki"), FIG. 3A (annotated)



EX-1008 (“Yamazaki”), FIG. 3B (annotated)



EX-1008 (“Yamazaki”), FIG. 3C (annotated)

EX-2001, 100.

These omissions and inconsistencies further underscore that a POSITA would not consider FIG. 3A as a depiction of the physical layouts of the display device

circuitry, including the number, arrangement, and directions of the auxiliary lines 301. EX-2001, 101-102.

In summary, the Petition's reliance on the box diagram components of FIG. 3A for an alleged teaching of a power line with different portions extending in different directions is clear error at least because Yamazaki itself establishes that the polygonal regions in FIG. 3A, including that for the auxiliary lines 301, do not depict the constituent components of these regions, or the physical layout, geometry, directions, etc., of the constituent components. EX-2001, 103. Indeed, the cross-sectional view of FIG. 3C, even as annotated by the Petition (Pet., 45), proves that the polygon region for the auxiliary lines 301 in FIG. 3A is not a depiction of the actual geometry, number, interconnectivity, etc., of the auxiliary lines 301. EX-2001, 103. As a result, Petitioners' reliance on the polygonal box diagram regions of FIG. 3A is erroneous, and fails to show a reasonable likelihood that each and every element of claim 1, including a first power line with different portions extending in different directions, is disclosed in Yamazaki. EX-2001, 103. Ground 1 must therefore fail.

B. Ground 2– Claim 1 is Not Rendered Obvious Under 35 U.S.C. § 103 By Koyama 168 In View of Koyama 604 and/or Koyama 671

As acknowledged in the Petition, Koyama 168 fails to disclose “**a first power line that has ... a second portion extending in a second direction that intersects the first direction**” and “**the second portion of the first power line being electrically connected to the second power line through plurality of contact holes**” as recited in claim 1 of the '267 Patent. Pet., 58 (Koyama 168 “used a single contact hole to connect any two power lines”), 75-76 and 87 (“the Koyama Combination features Koyama 168’s circuitry except that the vertical ‘VY’ power lines feature protrusions to accommodate multiple contact holes that connect to the horizontal ‘VX’ power lines.”).

The Petition instead alleges that a POSITA would have been motivated to combine Koyama 168 with Koyama 604 and/or Koyama 671 to arrive at these missing features. Pet., 56-66. Specifically, the Petition alleges that a POSITA would have understood that wiring resistance in Koyama 168 could further be reduced by increasing the number of contact holes, and in so doing would have added power line “protrusions.” Pet., 57-65.

First, as discussed below in sub-section 1, the Petition has not sufficiently shown a motivation to modify Koyama 168 by the secondary references, or any other rationale to establish obviousness under the law. In particular, Petitioners conclusively state that a POSITA would have been motivated to extend the power line of Koyama 168 in order to introduce additional contact holes for reducing wiring resistance, without at all addressing the art's explicit teaching that increasing the length of power line (i.e., extending the power line) would actually increase the wiring resistance. EX-2001, 107-113.

Second, as discussed below in sub-section 2, a POSITA would not have found it obvious to modify Koyama 168 to arrive at the features of claim 1, at least because (a) the Petitioners' asserted modification increases the length of power supply lines of Koyama 168, which is taught away by Koyama 168; (b) such modification would make Koyama 168 unsatisfactory for its intended purpose of reducing wiring resistance; (c) a POSITA would not have looked towards either of Koyama 604 or Koyama 671 to modify Koyama 168, since the subject matter of Koyama 604 and Koyama 671 are directed to different aspects of display devices and different problems to be solved; and (d) even if Koyama 604 and Koyama 671 were taken into consideration, combining Koyama 168 with Koyama 604 and/or Koyama 671

still fails to arrive at all features of claim 1, since Koyama 604 and Koyama 671 do not cure the deficiencies of Koyama 168. EX-2001, 114-145.

1. Petitioners Fail to Establish a Reasonable Expectation of Success in Modifying Koyama 168

Ground 2 is deficient because Petitioners do not adequately provide an “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

For its obviousness analysis, Petitioners rely on a motivation to combine rationale (Pet., 56-65), which requires:

- (1) “a finding that there was some teaching, suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;” and
- (2) “a finding that there was reasonable expectation of success.”

MPEP 2413(I)(G) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006)). “If any of these findings cannot be made, then this rationale cannot be used to

support a conclusion that the claim would have been obvious to one of ordinary skill in the art.” *Id.*

According to Petitioners, a POSITA would have been motivated to modify Koyama 168 to add power line “protrusions” to accommodate an increased number of contact holes in order to reduce wiring resistance, and (2) a POSITA would have had a reasonable expectation of success in reducing wiring resistance by the proposed modification. Pet., 58-65. Petitioners’ analysis, however, picks and chooses only selective teachings from the art that support their position, to the exclusion of other parts that are directly contrary.

In this regard, if the aim of Koyama 168 is reducing wiring resistance, as recognized by the Petition (Pet., 57-58), a POSITA would not have been motivated to extend the power lines by adding Koyama 671’s protrusions thereto. Koyama 671 is directed to an analog buffer circuit and is unconcerned with reducing wiring resistance, unlike Koyama 168 and Koyama 604. EX-1010, [0052]-[0053]; EX-1011, 1:8-15, 4:56-5:7; EX-1012, [0002], [0055]. Nevertheless, according to Petitioners, a POSITA would have been motivated to “increase[]” Koyama 168’s power lines (Pet., 60) in order to accommodate more contact holes because increasing the number of contact holes would have reduced the wiring resistance as

taught by Koyama 604. Pet, 58. What Petitioners ignore, however, is Koyama 168's teaching that it is "necessary" to decrease—NOT increase—the length of the power lines in order to reduce wiring resistance. EX-1010, [0156]. EX-2010, 111.

Thus, taking the teachings of the art as a whole, a POSITA would not have been motivated to "increase[]" the power lines of Koyama 168 (Pet., 60) to decrease wiring resistance, because the reference expressly conveys that such a modification would increase wiring resistance. EX-2010, 112. By not addressing or even acknowledging this critical and highly relevant teaching in the primary reference, Petitioners' obviousness analysis is defective. *In re Wesslau*, 353 F.2d 238, 241 (CCPA 1965) (improper to "pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art"); *see also Eli Lilly & Co. v. Actavis Elizabeth LLC*, 435 F. App'x 917, 921 (Fed. Cir. 2011) ("entirety of the prior art must be considered in determining obviousness").

For similar reasons, the Petition does not sufficiently establish a reasonable expectation of success. According to Petitioners, a POSITA would have had a reasonable expectation that increasing the number of contacts would reduce wiring

resistance, as taught by Koyama 604. Pet., 64. What this analysis does not appreciate, however, is the teaching of the art *as a whole*, which emphasizes that increasing the power line would increase wiring resistance. EX-2001, 113; EX-1010, [0032]-[0036], [0156], EX-1011, 3:20-28; *see also* Pet., 63 (“The ’267 patent, Koyama 168, and Koyama 604 all address their respective problems—essentially ensuring that power or signals are not attenuated because they must pass relatively long distances.”).

In contending that the wiring resistance of Koyama 168 can allegedly be reduced by including multiple contact holes, the Petition does not address the fact that the art teaches that extending (or increasing the length of) the power supply line in Koyama 168 would achieve the opposite effect. By not accounting for this explicit teaching of an increase in wiring resistance, Petitioners fail to establish that a POSITA would reasonably expect that “extending the VY power lines to overlap the VX power lines to accommodate more contact holes” (Pet. 64-75, 75-76, 86-88) would ultimately reduce wiring resistance in the VY power supply line of Koyama 168. *In re Wesslau*, 353 F.2d at 241 (improper to pick and choose); EX-2001, 113.

In view of the above, Petitioners have not satisfied their *prima facie* burden of proof for a legal case of obviousness, and therefore fail to show a reasonable likelihood of success for Ground 2.

2. It Would Not Have Been Obvious to Modify Koyama 168 to Disclose or Suggest the “Second Portion of the First Power Line” and “Plurality of Contact Holes” as Claimed

A POSITA would not have found it obvious to modify Koyama 168 in view of Koyama 604 and/or Koyama 671 to include “a first power line that has ... a second portion extending in a second direction that intersects the first direction” and “the second portion of the first power line being electrically connected to the second power line through plurality of contact holes” as recited in claim 1 of the '267 Patent. EX-2001, 114.

First, as described below in sub-section (a), Koyama 168 teaches away from extending (or increasing) the length of any of its power lines. EX-2001, 115-117.

Second, as described below in sub-section (b), modifying Koyama 168 to extend (or increase) the length of any of its power lines would make Koyama 168 unsatisfactory for its intended purpose of reducing wiring resistance. EX-2001, 118-121.

Third, as described below in sub-section (c), a POSITA would not have looked towards either of Koyama 604 or Koyama 671 to modify Koyama 168, since the subject matter of Koyama 604 and Koyama 671 are directed to aspects and problems to be solved that are different from the aspects and problems to be solved in Koyama 168. EX-2001, 122-133.

Fourth, as described below in sub-section (d), even if Koyama 604 and Koyama 671 were taken into consideration, modifying Koyama 168 by Koyama 604 and/or Koyama 671 still fails to arrive at all features of claim 1 of the '267 Patent, since Koyama 604 and Koyama 671 fail to cure the deficiencies of Koyama 168. EX-2001, 134-145.

For at least these reasons, Petitioners have not shown a reasonable likelihood of success that challenged claim 1 of the '267 Patent would have been obvious.

a. A POSITA Would Not Have Considered Modifying Koyama 168 to Extend (or Increase) Length of Power Lines

As described above in Section V(B), Koyama 168 is directed to solving problems caused by the wiring resistance of power supply lines, due to the length of the wirings. EX-1010, [0032]-[0036]; EX-2001, 115. In order to solve these problems, Koyama 168 describes features for reducing length of wirings. EX-1010,

[0133], [0138]-[0139], EX-2001, 115. Koyama 168 explicitly states that “it is *necessary* to make the wirings as short as possible.” EX-1010, [0156] (emphasis added); EX-2001, 115.

By “extending the VY power lines to overlap the VX power lines to accommodate more contact holes,” as contended in the Petition (Pet. 64-75, 75-76, 86-88), the VY power lines of Koyama 168 would be made longer, not “as short as possible” as *required* by Koyama 168. EX-2001, 116.

Thus, a POSITA would not have considered modifying Koyama 168 to extend (or increase) the length of any of its power lines in order to form a protrusion to accommodate multiple contact holes, since modifying Koyama 168 in such a manner is in plain contradiction of the explicit requirements of Koyama 168’s invention. EX-2001, 117. That is, Koyama 168 teaches away from the Petitioners’ proposed combination. EX-2001, 117; *In re Gurley*, 27 F.3d 551, 553 (Fec. Cir. 1994) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.”)

b. Modification of Koyama 168 Would Make Koyama 168
Unsatisfactory For Its Intended Purpose

There is no suggestion or motivation to make a proposed modification if doing so would render the prior art being modified unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984); *see also DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009) (“[T]he ‘predictable result’ discussed in [KSR] refers not only to the expectation that prior art elements are capable of being physically combined, but also that the combination would have worked for its intended purpose.”).

As described above in section V(B), Koyama 168’s solution for solving its identified wiring resistance problems requires reducing the length of the power lines. Namely, the intended purpose of Koyama 168 is to reduce the length of power lines, so as to reduce the wiring resistance therein. EX-1010, [0138], [0140], [0156]-[0157]; EX-2001, 118.

As described above in section VII(B)(1), extending (or increasing) length of a power supply line would increase the wiring resistance of the power supply line. EX-1010, [0156]; EX-2001, 119. Thus, modifying Koyama 168 to extend the power lines, in the manner proposed by the Petitioners, would render Koyama 168

unsatisfactory for its intended purpose of reducing wiring resistance, since such modification would instead increase the wiring resistance. EX-2001, 120.

For at least these reasons, a POSITA would not have found it obvious to modify Koyama 168 by or increasing the length of any of its power lines. EX-2001, 121.

c. A POSITA Would Not Have Looked Towards Koyama 604
and/or Koyama 671 To Modify Koyama 168

A POSITA would not have found it obvious to combine Koyama 604 and/or Koyama 671 with Koyama 168, nor look from one to the other for guidance. EX-2001, 122. Specifically, a POSITA would not have considered Koyama 604 when working on the subject matter of Koyama 168, for at least the following reasons.

First, as described above in Section V(C), the subject matter of Koyama 604 is directed to semiconductors in LCD devices. EX-1011, 1:8-15, 4:56-5:7; EX-2001, 124. Specifically, the descriptions of Koyama 604, including the origins of the problems to be solved, are all related to LCD devices. EX-2001, 124. Koyama 604 merely mentions an “EL element” a single time. EX-2001, 124; EX-1011, 16:25-30.

It would be highly unlikely for a POSITA to search or take guidance from Koyama 604, which is substantially related to LCD technology, when working on active-matrix OLED display technology described in Koyama 168. EX-2001, 125. As described above in Section II, LCD devices, such as described in Koyama 604, and active-matrix OLED display devices, such as described in Koyama 168, are substantially different. EX-2001, 125. For example, (a) LCD devices require a backlight, while OLED display devices do not require a backlight, (b) the pixels in LCD devices are voltage controlled whereas the pixels in EL display devices are current controlled, and (c) the arrangement of the wirings in LCD devices is different from the arrangement of wirings in EL display devices. EX-2001, 125.

Second, a POSITA would not have considered the subject matter of Koyama 604, which is related to semiconductor devices, when considering wiring configuration for the power supply lines of Koyama 168, which are wirings for supplying current to pixels. EX-2001, 126. As described above in Section II, semiconductor devices include circuits formed by thin film transistors (TFTs) which are utilized for controlling the operation of the display devices, while wirings (e.g., power lines, data lines, and scanning lines) are utilized for transmitting signals to the semiconductor devices and/or the pixels. EX-2001, 126. It would have been clear

to a POSITA that the operations of the semiconductor devices and the wirings are two different aspects in display devices, and the configurations associated therewith are different from one another. EX-2001, 126.

Third, as described above in Sections V(B) and V(C), Koyama 168 is directed to solving problems associated with wiring configuration of power supply lines, while Koyama 604 is directed to solving problems associated with data lines and scanning lines of a semiconductor device. EX-1010, [0032]-[0036], [0044]-[0053]; EX-1011, 2:37-4:53. Because Koyama 168 and Koyama 604 are directed to subject matter for solving entirely different problems, a POSITA would not have considered Koyama 604 when working on the subject matter of Koyama 168. EX-2001, 127.

For at least these reasons, a POSITA would not have considered combining Koyama 168 and Koyama 604, as the references describe different technologies and different aspects of display devices, as well as substantially different problems to be solved. EX-2001, 128.

Similarly, a POSITA would not have considered Koyama 671 when working on subject matter of Koyama 168. EX-2001, 129. First, a POSITA would not have considered the subject matter of Koyama 671, which is related to semiconductor devices, when considering wiring configurations for the power supply lines of

Koyama 168, which are for supplying current to pixels. EX-1012, [0002], [0055]; EX-2001, 130.

Second, as described above in Sections V(B) and V(D), Koyama 168 is directed to solving problems associated with wiring configurations of power supply lines, while Koyama 671 is directed to solving problems associated with analog buffer circuits of a semiconductor device. EX-2001, 131. Because Koyama 168 and Koyama 671 are directed to subject matter for solving entirely different problems, a POSITA would not have considered Koyama 671 when working on the subject matter of Koyama 168. EX-1010, [0032]-[0036], [0044]-[0053]; EX-1012, Abstract, [0031]; EX-2001, 131.

Further, although Koyama 671 describes contact holes, Koyama 671 does not describe utilizing the contact holes for reducing wiring resistance. EX-2001, 132. As described above in Section V(D), Koyama 671 is directed to solving problems of varying characteristics of TFTs in analog buffer circuit. EX-1012, Abstract, [0031]; . EX-2001, 132. Koyama 671 does not describe or suggest any configuration on power lines for reducing the wiring resistance in the power lines, let alone utilizing plurality of contact holes for reducing wiring resistance. EX-2001, 132.

Therefore, a POSITA would not have considered combining Koyama 168 and Koyama 671, as the references describe different aspects of display devices, as well as substantially different problems to be solved. EX-2001, 133.

d. Koyama 604 and Koyama 168 Fail to Cure Deficiencies of Koyama 168

Even if the subject matter of Koyama 604 and/or Koyama 671 is taken into consideration and used to modify Koyama 168, such combination still fails to cure the deficiencies of Koyama 168 and fails to arrive at all features of claim 1 of the '267 Patent, including **“a first power line that has ... a second portion extending in a second direction that intersects the first direction”** and **“the second portion of the first power line being electrically connected to the second power line through plurality of contact holes.”** EX-2001, 134-146.

Specifically, Koyama 604 fails to cure the deficiencies of Koyama 168, for at least the following reasons. First, as described above in Section V(C), Koyama 604 describes semiconductor devices in LCD display devices, and the wiring lines described in Koyama 604 are wiring lines of peripheral circuits in semiconductor devices, such as **data lines** and **scanning lines**. EX-1011, 2:53-58, 6:66-7:3; EX-2001, 136. Thus, Koyama 604 does not describe **power lines** of OLED display

devices, which are wirings for providing power or current for driving pixels of OLED display devices, let alone wiring methods for configuring **power lines**. EX-2001, 136.

Second, as described above in Section V(C), Koyama 604 describes connecting a wiring line in semiconductor devices (e.g., a **data line** or a **scanning line**) in parallel to an auxiliary wiring line via a plurality of contact holes. EX-1011 at 5:55-58, 6:66-7:3, and FIG. 1C; EX-2001, 137. The Petition cites to FIG. 1C and alleges that Koyama 604 “confirms that having a **power line protrusion** would have been an obvious solution for creating enough overlap to accommodate multiple contact holes.” (emphasis added). Pet., 60-61. However, since Koyama 604 does not describe any power line, Koyama 604 also fails to describe or suggest any “power line protrusion” as contended by Petitioners. EX-2001, 138. FIG. 1C of Koyama 604 is associated with configuration of wirings in a semiconductor device, and the wiring lines illustrated in FIG. 1C are **scanning lines** and **data lines**, not **power lines**. EX-1011, 5:42-43, 6:66-7:3; EX-2001, 138.

Furthermore, Koyama 604 describes that a wiring line is connected in parallel to an auxiliary wiring line via a plurality of contact holes. EX-1011, 5:55-58, FIG. 1C. Koyama 604, at best, suggests that the overlapping portions of two lines in

parallel can accommodate multiple contact holes, but does not, by any means, suggest a “protrusion” for accommodating multiple contact holes, as asserted by the Petitioners. EX-2001, 139. Rather, it is clear from FIG. 1C of Koyama 604 that the contact holes of Koyama 604 are formed on the overlapping portions of wiring line 111 and auxiliary wiring line 106, which are two straight wiring lines connected in parallel. EX-1011, FIG. 1C; EX-2001, 139.

In view of the above, the Petitioners' reliance on Koyama 604 is misplaced and based on hindsight, since Koyama 604 does not disclose (1) a power line, (2) a protrusion on the power line, and (3) accommodating multiple contact holes on the protrusion. EX-2001, 140.

Koyama 671 also fails to cure the deficiencies of Koyama 168. EX-2001, 141. First, as described above in Section V(D), Koyama 671 describes only one power supply line Vdd, but does not describe or suggest connecting the power supply line Vdd to any other components via a contact hole. EX-1012, FIG. 13; EX-2001, 142.

Second, as described above in Section V(D), although Koyama 671 describes contact holes, these contact holes are utilized for bonding components of an analog buffer circuit in a semiconductor device, such as gate metal and semiconductor metal

(S/D metal). EX-1012, FIG. 13; EX-2001, 143. This is acknowledged by Petitioners. *Pet.*, 54.

Petitioners nevertheless argue, with reference to FIG. 13, that Koyama 671 “provides further confirmation that having a **power line protrusion** would have been an obvious solution for creating enough overlap to accommodate multiple contact holes.” (emphasis added). *Pet.*, 61. Petitioners’ assertions, however, are inaccurate since Koyama 671 is not directed to a protrusion on a **power line** for accommodating multiple contact holes on the protrusion. EX-2001, 144.

For at least these reasons, even if Koyama 604 and/or Koyama 671 are taken into consideration, the deficiencies of Koyama 168 would still not be cured. EX-2001, 145. In other words, combining Koyama 168 with Koyama 604 and/or Koyama 671 still fails to arrive at all features of claim 1 of the ’267 Patent, including “a first power line that has... a second portion extending in a second direction that intersects the first direction” and “the second portion of the first power line being electrically connected to the second power line through plurality of contact holes.” EX-2001, 145.

**VIII. THE BOARD SHOULD EXERCISE ITS AUTHORITY AND
DENY INSTITUTION IN VIEW OF FINTIV AND JUDICIAL
ECONOMY**

The Board should exercise its discretion to deny institution under 35 U.S.C. §314(a) “because institution of a trial at the PTAB would be an inefficient use of Board resources in light of the ‘advanced state’ of the parallel district court litigation in which the petitioner had raised the same invalidity challenges.” *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, 2 (PTAB 2020) (precedential) (“Fintiv”) (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB 2018) (precedential) (“NHK”)).

In determining whether to deny institution, the Board is to consider the presence and status of parallel district court litigation. *NHK Spring Co., Ltd. v. Intri-plex Technologies*, IPR2018-00752, Paper 8, 11 (PTAB 2018) (precedential), and *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB 2020) (precedential) (“Fintiv”). *Fintiv* sets forth a non-exhaustive list of factors that balance system efficiency and fairness considerations when considering discretionary denial. *Fintiv*, 5–6:

1. Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. Investment in the parallel proceeding by the court and the parties;
4. Overlap between issues raised in the petition and in the parallel proceeding;
5. Whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. Other circumstances that impact the Board's exercise of discretion, including the merits.

Id.

Additionally, the *Fintiv* factors should be considered in view of the guidance provided in the June 21, 2022 Memo regarding Post-Grant Proceedings with Parallel District Court Litigation. ("*Fintiv* Memo"). *See* EX-2008.

Discretionary denial is warranted here because institution would be an inefficient duplication of a parallel district court litigation in which the same grounds of invalidity are being raised by Petitioners. Each *Fintiv* factor favors exercising

discretion to deny institution and none of the circumstances presented in the *Fintiv* Memo are applicable because Petitioners did not present compelling evidence of unpatentability (*supra* section V), there is no parallel ITC proceeding, and the Petitioners have not submitted a *Sotera* stipulation.

A. Factor 1: Whether a Stay Exists or is Likely to be Granted

The District Court has not instituted a stay, the Petitioners have not filed a motion to stay the District Court litigation, and there is no evidence that a stay would be granted if this IPR proceeding is instituted. This factor weighs against institution. *See Fintiv*, 12.

B. Factor 2: Proximity of the District Court's Trial Date

Trial with Petitioners in the District Court is scheduled to start on May 20, 2024, nearly five months before the projected deadline³ on November 17, 2024, for

³ The projected final written decision deadline of November 17, 2024, is one year after the projected date for the institution decision of November 17, 2023, which is three months after the deadline of August 17, 2023, for this Preliminary Response. Petitioners alleged an expected date of the Final Written Decision in

when any final written decision would be due should this petition be instituted. *See* 35 U.S.C. §§314(b) (“The Director shall determine whether to institute an inter partes review under this chapter pursuant to a petition filed under section 311 within 3 months after ... receiving a preliminary response to the petition under section 313.”) and 316(a)(11) (“requiring that the final determination in an inter partes review be issued not later than 1 year after the date on which the Director notices the institution of a review under this chapter.”); EX-1016. There is no reason to believe that trial will be delayed.

Petitioners argue that, based on Federal Court management statistics at uscourts.gov, the median time from filing to trial in the Eastern District of Texas is ordinarily 24.5 months, and thus, according to that estimate, the trial for the District Court litigation would likely take place in April 2024 since Patent Owner filed the complaint on April 18, 2022. Pet., 89. Petitioners’ argument demonstrates that the actual trial start date of May 20, 2024, is unlikely to be moved to a later date, at least since the actual trial start date gives the parties and court an additional month to

October 2024, Pet., 89, which would still be about six months after the scheduled trial date.

prepare for trial in comparison to an estimated trial start date of April 2024 (that is based on Petitioners' alleged median period of filing to trial of 24.5 months).

Petitioners further argue that the median time to trial should be measured from the date of service⁴ of the Complaint, instead of the date of filing of the Complaint. Pet. at 89-90. However, Petitioners have not provided any evidence related to the Federal Court management statistics to support this contention. Instead, a document, from uscourts.gov that explains terms of the Federal Court management statistics,

⁴ Patent Owner filed the Complaint on April 18, 2022, and then initiated the Hague process for international service, and sent via Federal Express, a copy of the Complaint with exhibits and a waiver form, in both English and Chinese, to each of the Petitioners, requesting the Petitioners to waive formal service. EX-2005, 3-4. Because none of the Petitioners had responded to these requests and one of the Petitioners has refused to accept the Federal Express package, Patent Owner requested leave, on July 22, 2022, from the District Court to serve the Petitioners through alternative means. *Id.* The Court granted the motion for leave on September 22, 2022, and the Petitioners were served the Complaint thereafter. EX-2006.

states that statistics on median time to trial is measured from the “date a case was filed.” EX-2004, 2. Even under Petitioners’ unsupported contention of such a later trial date, such a later trial date would still precede the expected Final Written Decision deadline.

Moreover, the most recent Federal Court management statistics indicate that, in the latest 12-month period ending on March 31, 2023, the median time from filing to trial in the Eastern District of Texas is 19.0 months, not 24.5 months as contended by the Petitioners. EX-2003, 35. Thus, even if the median time to trial is measured from the service date of the complaint of September 27, 2022, as erroneously contended by the Petitioners, instead of correctly from the filing date of April 18, 2022, the estimated trial start date would be April 2024 based on the most recent statistical data of median time (19.0 months). Such date is still a month before the currently scheduled trial start date of May 20, 2024, nearly seven months before the Final Written Decision deadline of November 17, 2024, should the Petition be instituted.

Also, in the District Court litigation, subsequent to the last service date of the Complaint of which the Petitioners alleged caused a delay, Petitioners and Patent Owner jointly agreed to entry of a proposed docket control order on February 2,

2023, which stated that jury selection for trial should be on May 20, 2024, and the court established such date for the jury selection. EX-1016 (Docket Control Order); EX-2002 (Joint Motion for Entry of Agreed Docket Control Order). Since Patent Owner, Petitioners, and the District Court established that May 20, 2024, was a suitable date to start trial, and because no material delay has occurred after filing of the proposed docket control order and entering of the docket control order, there is further no evidence that the trial date of May 20, 2024, will be moved to a later date.

Given that at least the trial in the District Court will proceed well before the expected Final Written Decision deadline, this factor favors denial of institution. *Roku, Inc. v. IOENGINE, LLC*, No. IPR2022-01554, Paper 11 (PTAB 2023); *Samsung Electronics Co. Ltd. v. California Institute of Tech.*, No. IPR2023-00130, Paper 10 (PTAB 2023); *Google, LLC. v. Personalized Media Comm., LLC.*, IPR2020-00723, Paper 22, 7 (PTAB 2020).

C. Factor 3: Investment in the Parallel Proceeding

Under the third factor, the Board is to “consider[] the amount and type of work already completed in the parallel litigation by the court and the parties at the time of the institution decision.” *Fintiv*, 9.

Patent Owner, Petitioners, and the District Court have already spent and will continue to spend significant resources on litigating the '267 Patent at and/or around the time of the institution decision.

Discovery is on-going in the District Court litigation, with both parties having already exchanged document requests and interrogatories. Additionally, infringement and invalidity contentions have been exchanged, and proposed claim terms for claim construction have been exchanged.

On November 17, 2023, the projected date for the institution decision, the exchange of claim construction briefs between the Patent Owner and the Petitioners should be completed, and the Patent Owner, Petitioners, and the District Court should have conducted the Markman Hearing on November 7, 2023. EX-1016.

The parties' substantial investment in the District Court litigation favors denial of institution.

D. Factor 4: Overlap Between Issues Raised in the Petition

Under the fourth factor, as the Board found in *Fintiv*, “if the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial.” *See Fintiv*, 12.

Issues related to the '267 Patent are being litigated in the parallel District Court litigation. Petitioners already set forth the grounds raised in this Petition in their invalidity contentions.

Additionally, Petitioners refuse to mitigate concerns of potentially conflicting decisions and duplicative efforts by failing to submit a stipulation in the District Court proceedings or elsewhere per *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential). Pet., 90 (Petitioners only agreed to “cease asserting in the district court any invalidity contention based on the prior art presented in this petition that constitutes part of a ground.” Petitioners omit a stipulation with respect to any ground that reasonably could have been raised, as required for *Sotera* to apply.)

These circumstances favor denial of institution. See *Roku, Inc. v. IOENGINE, LLC*, No. IPR2022-01554, Paper 11 (PTAB 2023); *Samsung Electronics Co. Ltd. v. California Institute of Tech.*, No. IPR2023-00130, Paper 10 (PTAB 2023); *Sand Rev'n II LLC v. Cont'l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24, 7 (PTAB 2020) (informative); *Sotera*, 18 (weighing Factor 4 in favor of denial of institution based on “concerns of inefficiency and the possibility of conflicting decisions”).

E. Factor 5: Whether Petitioners and the Defendant(s) in the Parallel Proceeding(s) are the Same Party

The Petitioners and the Defendants in the District Court litigation are the same parties. This factor favors denial of institution.

F. Factor 6: Other Circumstances that Impact the Board's Exercise of Discretion, Including the Merits

The Board is to consider the merits of a petitioner's challenge when determining whether to institute a post-grant proceeding in view of parallel district court litigation. EX-2008, 4. As explained in more detail above in section VII, Petitioners have failed to meet their burden under 37 C.F.R. §42.108(c) of establishing a reasonable likelihood of success that any of the challenged, pending claims are unpatentable, let alone a compelling case. *CommScope Techs. LLC v. Dali Wireless, Inc.* IPR2022-01242, Paper 23, 3 and 5 (PTAB 2023) (precedential) ("As the Guidance Memo and my precedential decision in *OpenSky* make clear, the compelling merits standard is a higher standard than the standard for institution set by statute.") ("[T]he Board must provide reasoning sufficient to allow the parties to challenge that finding and sufficient to allow for review of the Board's decision.").

In sum, each of the *Fintiv* factors weigh in favor of denying institution, and the Board should exercise its discretion in accordance therewith.

IX. CONCLUSION

As set forth above, the Petition fails to establish a reasonable likelihood of success with respect to challenged claim 1 of the '267 Patent under the Petition's Grounds 1 and 2. Additionally, the Board should exercise its discretion to deny institution under 35 U.S.C. §314(a). Therefore, the Petition should be denied in its entirety.

Respectfully submitted,

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August 17, 2023

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner hereby certifies that the present paper contains 11,549 words (as counted by the “Word Count” feature of Microsoft WordTM). This word count excludes the table of contents, table of authorities, table of exhibits, certificate of word count, and certificate of service.

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Patent Owners' Preliminary Response

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the attached Patent Owner Preliminary Response is being served by electronic mail on the following counsel of record:

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