

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Hisense USA Corporation

Petitioner,

v.

Brightplus Ventures LLC,

Patent Owner

Case No. IPR2023-01412

U.S. Patent No. 8,330,710

**PATENT OWNER'S REVISED CONTINGENT MOTION TO AMEND
UNDER 37 C.F.R. § 42.121**

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I. INTRODUCTION

Patent Owner Brightplus Ventures LLC (“Brightplus” or “Patent Owner”) respectfully submits this revised contingent request to substitute challenged claims 1, 2, 5, 11, 12, 16, 47 and 48 of U.S. Patent No. 8,330,710 (the “’710 Patent”). In the instituted trial, the Petitioner Hisense USA Corporation (“Hisense” or “Petitioner”) has challenged the patentability of claims 1-2, 5, 11-13, 16-17, and 47-48. Patent Owner submits that this Motion satisfies the statutory and regulatory requirements for a motion to amend the claims under 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121 because the proposed amendments: (i) do not enlarge the scope of the claims or introduce new subject matter; (ii) are responsive to at least one ground of patentability instituted in this proceeding; (iii) are supported by the disclosure of the originally-filed application; and (iv) are patentable over the closest known prior art.

II. MOTION TO AMEND IS CONTINGENT

Patent Owner submits that this Motion is contingent upon a finding in a final written decision that challenged claims are unpatentable. Specifically, Patent Owner requests the proposed substitute claims appended hereto for the indicated original claims.

III. A REASONABLE NUMBER OF CLAIMS ARE AMENDED

Under 37 C.F.R. §42.121(a)(3), a motion to amend may propose a

reasonable number of substitute claims for each challenged claim. Generally, it is presumed “that only one substitute claim would be needed to replace each challenged claim,” but that presumption may be rebutted upon a showing of need. 37 C.F.R. § 42.121(a)(3); *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4-5 (PTAB Feb. 25, 2019). “An amendment under this subsection may not enlarge the scope of the claims of the patent or introduce new matter.” 35 U.S.C. § 316(d)(3); *Pulse Elecs., Inc. v. U.D. Elec. Corp.*, No. 3:20-cv-01676-BEN-DEB, 2021 U.S. Dist. LEXIS 69938, at *22 (S.D. Cal. 2021). In this Revised Motion to Amend, Patent Owner proposes no more than 1 substitute claim for each challenged claim 58-65. Hence, patent Owner proposes a reasonable number of substitute claims. See Prelim. Guidance at 4.

IV. THE PROPOSED AMENDMENTS RESPOND TO A GROUND OF UNPATENTABILITY INVOLVED IN THIS TRIAL

While Patent Owner submits new and additional limitations in Claims 58, as well as additional amendments 59-65, the Board’s Preliminary Guidance is still applicable to this Revised Motion to Amend. For example, the Board recognized that “Patent Owner has responded to ground of unpatentability a ground of unpatentability involved in this proceeding because the Motion adds further limitations that Patent Owner contends render the claims patentable over Shteynberg[], Arai[], Zhang[], Kobori[], Kawabata[], and Lee[] cited in the Petition.” (Prelim. Guidance at 4-5). PO submits, in this Revised Motion to

Amend, arguments as to why the art cited in Petitioner's original grounds does not teach the limitations in proposed substitute claims 58-65. Additionally, all of the proposed substitute claims are to modify the claims included in Petitioner's original grounds, namely claims 1-2, 5, 11-12, 16, and 47-48.

V. THE PROPOSED AMENDMENTS DO NOT SEEK TO ENLARGE THE SCOPE OF THE CHALLENGED CLAIMS

While Claims 58-65 include new limitations not previously presented, Patent Owner submits the proposed substitute claims do not expand the scope of the claims. The Board discussed the "plurality of on-state drive currents" limitation, which is included in amended claim 58. Proposed substitute independent claim 58 includes the lighting panel element required by original claim 1, and further includes additional limitations as compared to the original claim. Consequently, even though proposed dependent claims 59-65 may have certain limitations removed, proposed dependent claims 59-65 do not enlarge the scope of the challenged patent. (See, Paper 18 at pg. 5). Also, See *Lectrosonics v. Zaxcom*, IPR2018-01129, Paper 15 at 6-7 (PTAB, Feb. 25, 2019) ("A substitute claim will meet the requirements of § 42.121(a)(2)(i) and (ii) if it narrows the scope of at least one claim of the patent, for example, the challenged claim it replaces, in a way that is responsive to a ground of unpatentability involved in the trial." (emphasis added)). Additionally, Patent Owner has addressed the claim listings and the changes proposed therein according to the Board's Guidance (See Prelim. Guidance

at 5).

VI. THE PROPOSED AMENDMENTS DO NOT INTRODUCE NEW SUBJECT MATTER

All the substitute claims are supported by the original disclosure of the '710 Patent (U.S. App No. 13/270,387; EX 1002 at 2-49). Additionally, PO submits that the specification in the issued Patent is the same as that which was originally filed and that the originally filed disclosure is the same as that which was filed in U.S. App No. 11/745,713.¹

Claim element	Originally filed disclosure (U.S. App 13/270,387 - Ex. 1002 at 2-49)	U.S. App 11/745,713
58. preamble "A ~~backlighting lighting~~ system for a display panel, comprising:"	Ex. 1002, pg. 24 at [0096]	pg. 24 at [0095].
58.a " a plurality of strings ~~of comprising~~ solid state lighting devices <u>connected</u> <u>in series, wherein the</u> <u>plurality of strings are</u> arranged in a first direction and positioned at intervals in at least one second direction;"	Ex. 1002, pg. 4 at [0010]; pgs. 13-14 at [0064]; pg. 39-40 at Figs. 2 and 4.	pg. 3 at [0009]; pg. 13 at [0063]; pgs. 40-41 at Figs. 2 and 4.
58.b " a current supply circuit configured to selectively supply a plurality of on-state drive currents to <u>each of</u> the	Ex. 1002, pg. 19 at [0081].	pg. 19 at [0080].

¹ The U.S. App No. 11/745,713 specification is identical to the specification of U.S. App. No. 13/270,387 as originally filed (i.e., Ex 1002 at 2-49). The only difference between the two is that the '713 application does not contain the "Related Application" paragraph found in the originally filed disclosure (see, Ex. 1002 at pg. 2: ¶0001).

plurality of strings responsive to a plurality of control signals; ~~and~~ "		
58.c "a <u>backlight</u> control system configured to receive a user input and to selectively provide <u>the plurality of</u> control signals to the current supply circuit responsive to the user input to selectively drive the plurality of strings, the <u>backlight</u> control system further including firing logic configured to determine a firing order of the plurality of strings <u>such that each string of the plurality of strings is capable of being fired independently of each other string;-</u> "	Ex. 1002, pgs. 14-15 at [0066]; pg. 22 at [0091].	pg. 14 at [0065]; pgs. 22-23 at [0090].
58.d "wherein <u>each of the plurality of strings is divided into at least a first portion and a second portion, and each respective portion of a respective string of the plurality of strings includes one or more solid state lighting devices that comprise the respective strings;-</u> "	Ex. 1002, pg. 4 at [0009]; pgs. 7-8 at [0031].	pg. 3 at [0008]; pg. 7 at [0030].
58.e " <u>wherein each of the first portion and the second</u>	Ex. 1002, pg. 4 at [0009]; pgs. 14-15 at [0066]; pgs.	pg. 3 at [0008]; pg. 14 at [0065]; pgs. 17-18 at

<u>portion is configured to be independently controlled by the backlight control system;</u>	17-18 at [0077].	[0076].
58.f " <u>wherein each of the first portion and the second portion of each of the plurality of strings of solid state lighting devices is operable to be fired in a spatially non-sequential firing order;</u>	See above - citations for claim element 58.e.	See above - citations for claim element 58.e.
58.g " <u>wherein the backlight control system is communicably coupled to a display controller to receive signals relating to operations of the display panel from the display controller;</u> "	Ex. 1002, pgs. 12-13 at [0062]; pg. 13 at [0063]; pg. 24 at [0096].	pg. 12 at [0061]-[0062]; pg. 24 at [0095].
58.h " <u>wherein the backlight control system is operable to control luminous intensities of the first and second portions of each string of the plurality of strings of solid state lighting device and to synchronize the firing order of the first and second portions with the operation of the display panel according to a synchronizing signal received from the display controller to achieve a desired color hue and</u>	Ex. 1002, pg. 9 at [0047]-[0048]; pgs. 23-24 at [0095]; pg. 46 at Figs. 14 and 15.	pgs. 8-9 at [0046]-[0047]; pg. 24 at [0094]; pg. 47 at Figs. 14 and 15.

<u>luminous intensity in an output of the display panel.”</u>		
59. " <u>the signals received by the backlight control system correspond to a plurality of display performance information signals; and the backlight control system is operable to selectively control a luminous intensity of the first portion separate from a luminous intensity of the second portion based on the display performance information signals.</u> "	Ex. 1002, pg. 5 at [0016]; pg. 13 at [0063]; pg. 17 at [0076]; pg. 38 at Fig. 1.	pg. 4 at [0015]; pg. 12 at [0062]; pgs. 17 at [0075]; pg. 39 at Fig. 1.
60. " <u>the luminous intensity of the first portion differs from the luminous intensity second portion by an amount determined by the display performance information signals.</u> "	Ex. 1002, pgs. 23-24 at [0095].	pg. 24 at [0094].
61. " <u>wherein the display performance information signals are produced by a color sensor.</u> "	See above - citations for claim element 58.e and Ex. 1002, pg. 13 at [0063]; pg. 24 at [0096].	See above - citations for claim element 58.e and pg. 12 at [0062]; pg. 24 at [0095].
62. " <u>wherein the display performance information signals are produced by a display performance feedback sensor.</u> "	Ex. 1002, pg. 13 at [0063]; pg. 17 at [0076].	pg. 12 at [0062]; pgs. 17 at [0075].
63. " <u>wherein the first portion is arranged on a</u>	Ex. 1002, pg. 5 at [0012]-[0013]; pgs. 7-8 at [0031].	pg. 4 at [0011]-[0012]; pg. 7 at [0030].

<u>first bar;</u> <u>the second portion is</u> <u>arranged on a second bar;</u> <u>a third portion is arranged</u> <u>on a third bar;</u> <u>the first bar is adjacent and</u> <u>in electrical</u> <u>communication with the</u> <u>second bar; and</u> <u>the third bar is adjacent and</u> <u>in electrical</u> <u>communication with the</u> <u>second bar.”</u>		
64. preamble “A method for controlling a plurality of strings ~~comprising of~~ <u>connected in series,</u> <u>wherein the strings are</u> configured to extend in a first direction and arranged substantially adjacent to one another, the method comprising:”	See above – citations for claim elements 58.preamble and 58.a.	See above – citations for claim elements 58.preamble and 58.a.
64.a “ <u>supplying, by a current supply circuit,</u> a plurality of pulsed drive currents to a plurality of groups of the plurality of strings <u>responsive to a plurality of control signals;”</u>	See above – citations for claim element 58.b.	See above – citations for claim element 58.b.
64.b “ <u>providing, by a backlight control system,</u> <u>the plurality of control signals to the current supply circuit, the current supply circuit being configured to selectively drive the plurality of</u>	See above – citations for claim element 58.c.	See above – citations for claim element 58.c.

<u>strings of solid state lighting devices, the backlight control system further including firing logic configured to determine a firing order of the plurality of strings;</u>		
64.c <u>“wherein each of the plurality of strings is divided into at least a first portion and a second portion, and each respective portion of a respective string of the plurality of strings includes one or more solid state lighting devices that comprises the respective strings;”</u>	See above – citations for claim element 58.d.	See above – citations for claim element 58.d.
64.d <u>“wherein each of the first portion and the second portion is configured to be independently controlled by the backlight control system;”</u>	See above – citations for claim element 58.e.	See above – citations for claim element 58.e.
64.e <u>“wherein each of the first portion and the second portion of each of the plurality of strings of solid state lighting devices is operable to be fired in a spatially non-sequential firing order;”</u>	See above – citations for claim element 58.f.	See above – citations for claim element 58.f.
64.f <u>“wherein the backlight control system is in communication with a display controller;”</u>	See above – citations for claim element 58.g.	See above – citations for claim element 58.g.

64.g <u>“wherein the backlight control system receives signals relating to operations of the display panel from the display controller; and”</u>	See above – citations for claim element 58.g.	See above – citations for claim element 58.g.
64.h <u>“wherein the backlight control system is operable to control luminous intensities of the first portion and the second portions of each of the strings of solid state lighting devices and to synchronize the firing order of the first and second portions with the operations of the display panel according to a synchronizing signal received from the display panel to achieve a desired color hue and luminous intensity in an output of the display panel.”</u>	See above – citations for claim element 58.h.	See above – citations for claim element 58.h.
65. <u>“wherein the first portion is arranged on a first bar; the second portion is arranged on a second bar; a third portion is arranged on a third bar; the first bar is adjacent and in electrical communication with the second bar; and the third bar is adjacent and in electrical</u>	See above – citations for claim 63.	See above – citations for claim 63.

<u>communication with the second bar.”</u>		
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The citations in the table above demonstrate written support for claims 58 and 64, specifically 1) that backlighting system for a display panel can comprise multiple a plurality of strings comprising solid state lighting devices connected in series, wherein the plurality of strings are arranged in a first direction and positioned in intervals in at least one second direction 2) that the current supply circuit is configured to selectively supply a plurality of on-state drive currents to each of the plurality of strings, 3) that a backlight control system is configured to receive a user input and to selectively provide the plurality of control signals to the current supply circuit responsive to the user input, and that the backlight control system includes firing logic configured determine a firing order of the plurality of strings such that each is capable of being firing independently of each other string, 4) that each of the plurality of strings is divided into at least a first portion and a second portion and each respective portion includes one or more solid state lighting devices, 5) that the first and second portions are configured to be independently controlled by the backlight system and can be fired in a spatially non-sequential firing order, 6) that the backlight control system is coupled to a display control to receive signals relating to operations of the display panel, and 7) that the backlight control system is operable to control luminous intensities of the first and second portions of each string and to synchronize the firing order of each portion with the

operation of the display panel according to the synchronizing signal received from the display controller to achieve a desired color hue and luminous intensity in an output of the display panel. The disclosures the priority application, and the application that matured into the subject patent, as originally filed, demonstrate possession of the subject matter recited in the proposed substitute claims 58 and 64, as a whole, because (a) each of the limitations are described in connection with the same embodiment of the invention, (b) the description indicates the features of one embodiment may be included in other embodiments, and/or (c) the drawings illustrate the features being used in combination with one another.

The citations in the table above demonstrate written support for claims 59-62, specifically 1) that the signals received by the backlight control system correspond to a plurality of display performance information signals, 2) that the backlight control system is operable to selectively control a luminous intensity of the first portion separate from luminous intensity of the second portion based on the display performance information signals, 3) that the luminous intensity of the first portion differs from the luminous intensity second portion by an amount determined by the display performance information signals, and 4) wherein the display performance signals are produced by a color sensor or a performance feedback sensor. The disclosures in the priority application, and the application that matured into the subject patent, as originally filed, demonstrate possession of the subject matter recited in the proposed substitute claims 59-62, as a whole, because

(a) each of the limitations are described in connection with the same embodiment of the invention, (b) the description indicates the features of one embodiment may be included in other embodiments, and/or (c) the drawings illustrate the features being used in combination with one another

The citations in the table above demonstrate written support for claim 63 and 65, specifically 1) that the first portion is arranged on a first bar, 2) that the second portion is arranged on a second bar, 3) that a third portion is arranged on a third bar, 4) that the first bar is adjacent and in electrical communication with the second bar, and 5) the third bar is adjacent and in electrical communication with the second bar. The disclosures in the priority application, and the application that matured into the subject patent, as originally filed, demonstrate possession of the subject matter recited in the proposed substitute claims 63 and 65, as a whole, because (a) each of the limitations are described in connection with the same embodiment of the invention, (b) the description indicates the features of one embodiment may be included in other embodiments, and/or (c) the drawings illustrate the features being used in combination with one another.

A. Proposed Substitute Claims 58 and 59 Are Supported by the Specification of the '710 Patent

Support for the amendment in these proposed substitute claims can be found in the '710 Patent at Figs. 2 and 14; 8:11-15; 9:33-47; 15:22-16:7; and dependent Claim 15. Specifically, the '710 Patent demonstrates that the lighting system is directed towards a backlight for an LCD display. The '710 Patent further

illustrates that the control system can determine the luminous intensity of each string, is configured to receive a synchronization signal from a display controller configured to a display, and that the firing order of the plurality of strings and the luminous intensity of each of the strings in the plurality of strings are synchronized with periodic operations of the display.

VII. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE

A. The Combination of Shteynberg And Kawabata Does Not Invalidate The Proposed Substitute Claims

In its Preliminary Guidance, the Board agreed with the Petitioner that the combination of Shteynberg and Kawabata teaches an “on-state drive current...individually determined for each string”. However, Kawabata and Shteynberg do not teach a backlighting module comprising “a plurality of strings of solid state lighting devices...divided into at least a first portion and a second portion...[and] configured to be independently controlled” as per claim 58. Shteynberg “provides for individually and selectively allowing current to flow through each of the series of LEDs 110 1, 110 2, 110 3, through 110 N, i.e., turning on or off any selected series of LEDs 110 1, 110 2, 110 3, through 110 N.” (Shteynberg at 0047). Shteynberg does not discuss portions of each string 110 nor controlling the individual components of each string 110. The elements 2 of Kawabata are cold cathode tubes and are therefore not configurable in the manner of claim 58; Kawabata teaches, in multiple embodiments, that the cold cathode tubes are either turned on or off and there is no teaching of lighting only a portion

of the CCFL lighting element (Ex. 1012 at ¶¶0068-0070) or that the CCFL lighting element comprises first and second portions. That is, one could not control individual longitudinal sections of a cold cathode tube. Since Kawabata's elements 2 are not capable of being separated into multiple portions, it cannot be combined with the selective control of a series of LEDs per Shteynberg to teach this limitation. A POSITA would understand that it would not make sense to combine the teachings of the references given the very different natures of the lighting elements.

Neither Arai, Lee, Zhang nor Kobori teaches this limitation. Arai discusses the layout and structure of a backlighting device employing LEDs but the control of those LEDs is not discussed. Lee discloses a plurality of LEDs within a "divided region" that are connected in series and further connected in parallel to a second plurality of LEDs in another divided region. ("identical color LEDs on each divided region are interconnected in series, the series connections of the red, green and blue LEDs in one divided region are respectively connected to the series connections of the red, green and blue LEDs in one or more other divided regions in parallel, and the parallel connections of the series connections are connected to corresponding color LED driving circuits." Lee at 0014) However, Lee does not disclose selective control of portions of a string (series) of LEDs as per claim 58. Kobori does not teach selective control of portion of a string of LEDs as per claim 58. Kobori teaches a plurality of LED arrays, each comprising a series of LEDs,

that are operable to be selectively controlled (Kobori at 0049 and 0065). Kobori, however, does not intend for each LED of a series of LEDs to require an individual detector, “it is also possible to connect the LEDs in series so as to detect the electric power of the entire string. In this case, there is no need of providing detection means for each of the LEDs and it is possible to reduce the number of the current detection means.” (Kobori at 0039). Kobori also relies on detection of the luminiferous output of each entire LED array to “perform a highly accurate luminiferous level control as well as easily uniformize the balance of the luminiferous distribution of the LED array.” (id at 0037). Thus, Kobori does not disclose dividing the LED arrays into portions or controlling portions of a string of LEDs connected in series. Zhang does not teach that the backlight modules comprise portions, selectively controlling portions of a strings of LEDs, or synchronizing the operation of the backlight with the operation of the panel. Since neither Arai, Lee, Zhang, nor Kobori teach a series of LEDs that can be divided into selectively controllable portions, they cannot be combined with Shteynberg to teach this limitation.

B. The Combination Of Kawabata And Kobori Does Not Invalidate The Proposed Substitute Claims

In its Preliminary Guidance, the Board agreed with the Petitioner that Kawabata teaches “one of ordinary skill in art that firing order may be synchronized with periodic operations of the display”. Specifically, the Board

noted that “this description teaches that each light-emitting element 213 should start to emit light (that is, should fire) synchronously with the input of a video signal to a particular area of the liquid crystal panel 300.” (Prelim Guidance at 13). However, Kawabata does not teach a backlighting system comprising “a plurality of strings comprising solid state lighting devices connected in series...[and] divided into at least a first portion and second portion...configured to be independently controlled... wherein the backlight control system is operable to control luminous intensities of the first and second portions of each string of the plurality of strings... and to synchronize the firing order of the first portion and the second portions with an operation of the display panel according to a synchronizing signal received from the display controller to achieve a desired color hue and luminous intensity in an output of the display panel” per claim 58. As noted above, the elements 2 of Kawabata are cold cathode tubes, which Kawabata does not teach as being divided into multiple portions, and which cannot be divided into multiple portions. Further, Kawabata does not discuss the color hue and luminous intensity of the output of the display. Kawabata’s system is effectively “ON/OFF”. It does not contemplate varying the intensity of its lighting elements to achieve an optimal display output. (“These light-emitting elements 94 may be driven independently. By controlling and sequentially turning ON and OFF one of these light-emitting elements 94 after another, light may be emitted from one predetermined region on the diffuser 92 after another.” Kawabata at

0007). The Board noted that Kobori teaches a “luminous intensity being synchronized with periodic operations of the display”. (Prelim. Guidance at 14). As noted above, Kobori does not contemplate dividing an LEDs array, comprising a string of LEDs, into multiple portions or selectively controlling portions of a string of LEDs connected in series. Therefore, Kobori cannot contemplate controlling portions of a string of LEDs in order to achieve a desired color hue and luminous intensity of a display panel as per claim 58. Since Kawabata cannot teach the limitations of claim 58 and Kobori teaches away from dividing a series of LEDs into selectively controllable portions, the combination of these references does not teach or render obvious the limitations of claim 58.

Similarly to the reasons set forth in the previous section, Shteynberg, Arai, Zhang, and Lee also do not teach this limitation. Shteynberg does not discuss displays. It mentions “backlighting” only in passing at para 0079. Thus, it cannot teach synchronizing strings of solid state lighting devices with the operation of a display as per claim 58. Arai does not disclose a controller or allude to synchronization of a backlight with a display. Zhang does not disclose that the backlight modules comprise portions, selectively controlling portions of strings of LEDs, or synchronizing the operation of the backlight with the operation of the panel. Lee discloses an LCD panel but does not disclose synchronizing the operation of its backlight with the operation of the panel. Therefore, none of the cited references can teach or render obvious the limitations of claim 58.

C. Claims 59 And 60 Are Not Invalidated By The Prior Art

As described above, none of Petitioner's references described the first and second portions as recited in claim 58. Accordingly, the references do not teach strings of LEDs that comprise first and second portions which have separate, or different, luminous intensities based on display performance information signals as recited in claims 59 and 60.

D. Claims 61 and 62 Are Not Invalidated By The Prior Art

Of the references cited in the Board's Preliminary Guidance, only Shteynberg and Kobori disclose sensors. Shteynberg discloses a series of sensors that are used to measure the input voltage and/or output voltage across the series of LEDs ("Input voltage V_{in} (from DC voltage source 105) can be measured (e.g., through a sensor 185), selected or otherwise predetermined, with a value stored in memory 175...the actual output voltage across each series of LEDs 110 1, 110 2, 110 3, through 110 N is measured, also using a sensor 185. Corresponding to such measurements, compensation coefficients are introduced, stored in memory 175, and utilized for subsequent output voltage prediction by the controller 125" Shteynberg at 0071 and 0072). Shteynberg does not disclose using its sensors to selectively manage the output of its series of LEDs. Kobori employs electric power sensors positioned in electrical communication with the LEDs 4-7. These power sensors detect the output voltage values of the LEDs. (Kobori at 0033). Claims 61 and 62 depend from claim 59 which states that "the signals received by

the backlight control system correspond to a plurality of display performance information signals and the backlight control system is operable to selectively control a luminous intensity of the first... and second portion[s separately]... based on the display performance information signals”. Thus, the sensors in claims 61 and 62 comprise sensors that detect display information and send information signals that can cause the backlight control system to selectively control the first and second portion. The electric power sensors of Kobori do not detect display information, adjust luminous intensity based on display performance information signals as required by claims 61-62, or pass signals through the display controller to the backlight controller as required by the entirety of claims 58, 59, and 61-62. Shteynberg does not include disclosure relating to a display, therefore it does not include a display controller. Since neither Shteynberg nor Kobori disclose this relationship, they cannot teach or render obvious claims 61-62.

E. Claims 63 And 65 Are Not Invalidated By The Prior Art

Of the references cited in the Board’s Preliminary Guidance, only Lee an arrangement that, in its drawings, appears to show LEDs arranged on adjacent panels. However, Lee does not disclose that the LEDs on these separate panels are connected in series as per claim 64. Rather, Lee discloses that all of the LEDs in a divided region 20 are connected in series and the LEDs in an adjacent divided region are connected in parallel. (LEDs on each divided region are interconnected

in series, the series connections of the red, green and blue LEDs in one divided region are respectively connected to the series connections of the red, green and blue LEDs in one or more other divided regions in parallel, and the parallel connections of the series connections are connected to corresponding color LED driving circuits.” Lee at 0014.) Lee does not disclose multiple bars arranged adjacent to one another wherein a series of LEDs is divided into portions and each portion is disposed on a separate bar as per claim 64. Arai discloses a light emitting block 11 with a number of LEDs 12 mounted along its long axis. (“Moreover, the light emitting block 11 is composed of a plurality of red LEDs, green LEDs and blue LEDs (hereinafter generally referred to as LEDs), and a laterally elongated rectangular wiring board 12 a on which these LEDs 12 are mounted in a predetermined order.” Arai at 0029. See also Arai Figures 1, 2, 4-8.) However, the mounting block 11 is not depicted or described as being divided into separate bars on which a portion of an LED string is mounted as per claim 63. Arai also does not disclose that each portion of each string mounted on a separate bar is independently and selectively controllable as per claim 63.

VIII. CONCLUSION

For the reasons set forth herein, Patent Owner submits that proposed substitute claims satisfy all of the statutory requirements for a motion to amend set forth in paragraphs (1) and (3) of 35 U.S.C. § 316(d) and paragraphs (a)(1), (a)(2), (a)(3), (b)(1) and (b)(2) of 37 C.F.R. § 42.121 and respectfully requests the

Motion be granted contingent upon a finding that the challenged claims are unpatentable.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that the above-captioned Mandatory Notice was served on counsel of record for the Petitioner by filing this document through the Patent Review Processing System as well as by delivering a copy via electronic mail to:

MFerrario@kilpatricktownsend.com (Lead Counsel)
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Dated November 20, 2024

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APPENDIX A

(Proposed Amendments)

58. (proposed substitute for claim 1) A backlighting lighting system for a display panel, comprising:

a plurality of strings ~~of~~ comprising solid state lighting devices connected in series, wherein the plurality of strings are arranged in a first direction and positioned at intervals in at least one second direction;

a current supply circuit configured to selectively supply a plurality of on-state drive currents to each of the plurality of strings responsive to a plurality of control signals; ~~and~~

a backlight control system configured to receive a user input and to selectively provide the plurality of control signals to the current supply circuit responsive to the user input to selectively drive the plurality of strings, the backlight control system further including firing logic configured to determine a firing order of the plurality of strings such that each string of the plurality of strings is capable of being fired independently of each other string;-

wherein each of the plurality of strings is divided into at least a first portion and a second portion, and each respective portion of a respective string of the plurality of strings includes one or more solid state lighting devices that comprise the respective strings;

wherein each of the first portion and the second portion is configured to be independently controlled by the backlight control system;
wherein each of the first portion and the second portion of each of the plurality of strings of solid state lighting devices is operable to be fired in a spatially non-sequential firing order;
wherein the backlight control system is communicably coupled to a display controller to receive signals relating to operations of the display panel from the display controller;
wherein the backlight control system receives signals relating to operations of the display panel from the display controller; and
wherein the backlight control system is operable to control luminous intensities of the first and second portions of each string of the plurality of strings of solid state lighting device and to synchronize the firing order of the first and second portions with the operation of the display panel according to a synchronizing signal received from the display controller to achieve a desired color hue and luminous intensity in an output of the display panel.

59. (proposed substitute for claim 2) The backlighting system of claim ~~4~~58,
~~wherein the firing logic comprises rule-based logic operative to generate a non-spatially sequential firing order~~
the signals received by the backlight control system correspond to a plurality of display performance information signals; and
the backlight control system is operable to selectively control a luminous intensity of the first portion separate from a luminous intensity of the second portion based

on the display performance information signals.

60. (proposed substitute for claim 5) The backlighting system of claim 459,
~~wherein ones of the plurality of strings are arranged corresponding to a plurality of~~
~~bars that include portions of the plurality of strings, wherein the plurality of bars~~
~~extend in the first direction and are positioned adjacent one another in a~~
~~substantially parallel arrangement~~ the luminous intensity of the first portion differs
from the luminous intensity second portion by an amount determined by the
display performance information signals.

61. (proposed substitute for claim 11) The backlighting system of claim 459,
~~wherein the firing logic comprises random logic operative to generate the firing~~
~~order.~~ wherein the display performance information signals are produced by a
color sensor.

62. (proposed substitute for claim 12) The backlighting system of claim 459,
~~further comprising a means for generating a feedback signal configured to provide~~
~~display performance information to the control system.~~ wherein the display
performance information signals are produced by a display performance feedback
sensor.

63. (proposed substitute for claim 16) The backlighting system of claim 458,
~~wherein the second direction is substantially orthogonal to the first direction.~~
wherein the first portion is arranged on a first bar;

the second portion is arranged on a second bar;

a third portion is arranged on a third bar;

the first bar is adjacent and in electrical communication with the second bar;

and

the third bar is adjacent and in electrical communication with the second bar.

64. (proposed substitute for claim 47) A method for controlling a plurality of strings comprising of solid state lighting devices connected in series, wherein the strings are configured to extend in a first direction and arranged substantially adjacent to one another, the method comprising:

supplying, by a current supply circuit, a plurality of pulsed drive currents to a plurality of groups of the plurality of strings responsive to a plurality of control signals;

providing, by a backlight control system, the plurality of control signals to the current supply circuit, the current supply circuit being configured to selectively drive the plurality of strings of solid state lighting devices, the backlight control system further including firing logic configured to determine a firing order of the plurality of strings;

wherein each of the plurality of strings is divided into at least a first portion and a second portion, and each respective portion of a respective string of the plurality of strings includes one or more solid state lighting devices that comprises the respective strings;

wherein each of the first portion and the second portion is configured to be independently controlled by the backlight control system;

wherein each of the first portion and the second portion of each of the plurality of strings of solid state lighting devices is operable to be

fired in a spatially non-sequential firing order;
wherein the backlight control system is in communication with a display
controller;

wherein the backlight control system receives signals relating to
operations of the display panel from the display controller; and
wherein the backlight control system is operable to control luminous
intensities of the first portion and the second portions of each of the
strings of solid state lighting devices and to synchronize the firing
order of the first and second portions with the operations of the
display panel according to a synchronizing signal received from the
display panel to achieve a desired color hue and luminous intensity in
an output of the display panel.

65. (proposed substitute for claim 48) The method of claim 47~~58~~, ~~further~~
~~comprising receiving a user input,~~
~~wherein supplying the plurality of pulsed drive currents is based on the user input,~~
wherein the first portion is arranged on a first bar;
the second portion is arranged on a second bar;
a third portion is arranged on a third bar;
the first bar is adjacent and in electrical communication with the second bar;
and
the third bar is adjacent and in electrical communication with the second
bar.