

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. IPR2023-01401

U.S. Patent No. 8,941,331

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

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I. INTRODUCTION

Proposed substitute claims 26-34 address Petitioner's opposition to Patent Owner's Motion to Amend, the prior art references submitted therein, and the deficiencies identified by the Board in its Preliminary Guidance. The original and additional prior art references submitted by Petitioner, individually or when combined, do not render the following limitations of Claim 26-34 obvious for the reason set forth below.

II. MOTION TO AMEND IS CONTINGENT

Patent Owner submits that this Motion is contingent upon a finding in a final written decision that one or more of the challenged claims are unpatentable. Specifically, Patent Owner requests that the proposed substituted claim indicated in the Proposed Amendments below be substituted for the original claim indicated therein if the indicated original claim is found unpatentable.

III. A REASONABLE NUMBER OF CLAIMS IS 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 17-25. 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 26, as well as additional amendments 27-34, 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 Lys, Grootes, Xu, Mueller, and Blum cited in the Petition." (Prelim. Guidance at 4). Patent Owner submits, in this Revised Motion to Amend, arguments as to why the art cited in Petitioner's original grounds and the additional art cited in Petitioner Opposition to Patent Owner Contingent Motion to Amend does not teach the limitations in proposed substitute claims 26-34. Additionally, all of the proposed substitute claims are to modify the claims included in Petitioner's original grounds, namely claims 17-25.

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

While Claims 26-34 include new limitations not previously presented, Patent Owner submits the proposed substitute claims do not expand the scope of the claims. The Board stated that “[i]f the phrase ‘a lighting panel’ was not omitted, the amendment would not seek to enlarge the scope of the claims” (Prelim. Guidance at 5). Proposed substitute independent claim 26 includes the lighting panel element required by original claim 17, and further includes additional limitations as compared to the original claim. Consequently, even though proposed dependent claims 27-34 may have certain limitations removed, proposed dependent claims 27-34 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)).

VI. THE PROPOSED AMENDMENTS DO NOT INTRODUCE NEW SUBJECT MATTER

All the substitute claims are supported by the disclosure in the ‘331 Patent’s Provisional Application (U.S. App. 60/738, 305) and the Original Disclosure (EX 1002 at 9-40). 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. Apps 13/896,977, 11/601,504, 12/977,422, 13/469,188.

Claim element	Originally filed disclosure (U.S. App 13/896,977 - Ex. 1002 at 9-40)	Provisional Application (U.S. App 60/738,305) (Ex. 2011)	U.S. App. 11/601,504 (Ex. 2012)	U.S. App. 12/977,422 (Ex. 2013)	U.S. App. 13/469,188 (Ex. 2014)
26.a "at least a <u>first lighting tile</u> and a second <u>lighting tile</u> , <u>each lighting tile comprising at least a first string of solid state lighting devices</u> ,"	1. ¶0008, ¶0046, ¶0054-0056, ¶0058, ¶0060, ¶0065	1. at pg. 15 "Each colorwave tile" 2. pg.16 "the two substrate are multichip LED... tiles such as Colorwave illumination tiles and comprising a plurality of LED dice on chips mounted on a circuit board substrate" 3. pgs. 29-30 - multi-tile diagram	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)

		4. pg. 14 - string of solid state lighting devices on each substrate			
26.b " <u>wherein the brightness of the at least first light and second light is a function of the duty cycle of the string;</u> "	1. ¶¶0055, ¶¶0083-0084	1. at pgs. 7 and 15.	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
26.c " <u>wherein each of the first lighting tile and second lighting tile are arranged horizontally in the lighting panel;</u> "	See above - claim 26.a	See above - claim 26.a	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
26.d " <u>wherein each of the at least first, and second lighting tiles comprise a</u>	1. ¶0045	1. at pg. 15 "MCPCB or other substrate ... these	Same citations at the originally filed	Same citations at the originally filed	Same citations at the originally filed

<u>metal core printed circuit board (MCPCB) on which a plurality of patterned metal traces are formed and having thereon a polymer coating;"</u>		substrates are typically fashioned into circuits from combinations of dielectric and conductive materials."	disclosure (Ex. 1002 at 9-40)	disclosure (Ex. 1002 at 9-40)	disclosure (Ex. 1002 at 9-40)
26.e " <u>wherein the at least first and second current supply circuits are coupled to the at least first and second strings of solid state lighting devices at least in part by one of the plurality of patterned metal traces formed on MCPCB;"</u>	1. ¶¶0045-0046, ¶0067	1. at pgs. 1, 12, 14, 15, and 16	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
27 " <u>the PWM control signals both have a period of</u>	1. ¶0087	1. pg. 7, "overall PWM period is	Same citations at the originally	Same citations at the originally	Same citations at the originally

<u>approximately 5ms or a frequency of approximately 200Hz."</u>		5mS. Thus, the PWM frequency is 200 Hz."	filed disclosure (Ex. 1002 at 9-40)	y filed disclosure (Ex. 1002 at 9-40)	y filed disclosure (Ex. 1002 at 9-40)
28 " <u>the PWM control signals both have a period greater than 0.5ms or a frequency of less than 2000Hz</u> "	See above - claim 27	See above - claim 27	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
29 " <u>each of the solid state lighting devices comprises at least two or more light emitting diodes each covered by the same encapsulant</u> "	1. ¶¶0047-0050 and Fig. 2	1. at pg. 16 ("illuminating tiles... comprising a plurality of LED dice on chips mounted on a circuit") and pg. 18 ("tile may comprise sensitive materials like	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)

		optical encapsulants or die attach epoxies and phosphors”).			
30 " <u>wherein an interconnect is mounted on each tile.</u> "	1. ¶0046, ¶0055, ¶0057, ¶0059, Figs. 1, and 4a-4b	1. pgs. 2-5 and pgs.17-18. “the interconnect must be very low profile protruding very little above the plane of the tiles upon which the LED’s are mounted, so as <u>not</u> to interfere with optical performance of the LED chips and other constituents of the	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)

		substrate (reflector sheets for example.) ”			
31 " <u>comprising a low-profile configured so as to not interfere with the optical performance of the LEDs</u> "	See above - claim 30	See above - claim 30	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
32 " <u>wherein each tile is coupled to a flexible connector</u> "	1. ¶0055, ¶0057, ¶0059, Figs. 4a-4b	1. at pgs. 1 and 2.	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
33 " <u>wherein the tiles are mounted to a metal backplate that contains a through hole</u> "	1. ¶0008, ¶0059, ¶0074, ¶0080	1. at pgs. 1, 21, and 29.	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)

34 " <u>the flexible connector travels via the through hole to the interconnect mounted on the tile substrate</u> "	1. ¶0074, ¶0080	1. at pg. 21 ("pins protruding through both the aluminum backplate and tile through holes"). Also, see the left image on Pg. 1.	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)	Same citations at the originally filed disclosure (Ex. 1002 at 9-40)
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Proposed substitute claim 26 recites: a lighting system, that includes a lighting panel having two lighting tiles arranged horizontally in the lighting panel, each comprising a metal core printed circuit board on which a plurality of patterned metal traces are formed and having thereon a polymer coating, and each including a pair of strings of solid state lighting devices configured to emit at least a first and second light, wherein the brightness of the light is brightness is a function of the duty cycle of the string. The lighting panel further comprises at least first and second current supply circuits coupled to the first and second string of solid state lighting devices in part by the patterned metal traces and a PWM controller coupled to the current supply circuits, wherein the PWM generates, for the current supply circuits, PWM signals that are supplied to the strings of solid state lighting devices.

The citations in the table above demonstrate written support for claim 26,

specifically 1) that the lighting system can comprise multiple lighting tiles that comprise a MCPCB which strings of solid state lighting devices are mounted, 2) that the brightness of light is a function of the duty cycle of the string, 3) that the lighting system comprises first and second current supply circuits coupled to the strings of solid state lighting devices via the metal traces on the MCPCB, and 4) that the lighting system comprises a PWM controller coupled to, and generating PWM signals, for the current supply circuits. The disclosures in the provisional, each intervening 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 claim 26, 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.

Proposed substitute claims 27 and 28 recite: PWM control signals each having a period between approximately .5ms and 5ms or a frequency of between approximately 200Hz and 2000Hz.

The citations in the table above demonstrate written support for claims 27 and 28, specifically that the PWM control signals have the recited frequency and period. The disclosures in the provisional, each intervening 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 27 and 28, 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

Proposed substitute claims 29 recites: that each of the solid state lighting devices comprising at least two or more light emitting diodes each covered by the same encapsulant.

The citations in the table above demonstrate written support for claim 29, specifically that each solid state device comprises multiple light emitting diodes covered by the same encapsulant. The disclosures in the provisional, each intervening 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 claim 29, 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.

Proposed substitute claims 30-31 recite: an interconnect mounted on each tile, wherein the interconnect comprises a low profile configured so as to not interfere with the optical performance of the LEDs.

The citations in the table above demonstrate written support for claims 30 and 31, specifically that each tile can contain an interconnect mounted thereon and that the interconnect can comprise a low-profile. The disclosures in the provisional, each intervening 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 30-31, 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.

Proposed substitute claims 32-34 recite: that each tile is connected to a flexible connector, are mounted to a metal backplate that comprises a through hole, wherein the flexible connector travels via the through hole to an interconnect mounted on the tile substrate

The citations in the table above demonstrate written support for claims 32-34, specifically that the tiles can be mounted to a metal backplate having a through hole and that each tile is connected to a flexible connector that travels via the through hole to the interconnect mounted on the tile. The disclosures in the provisional, each intervening 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 32-34, 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.

VII. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE

Proposed substitute claims 26-34 address Petitioner's opposition to Patent Owner's Motion to Amend, the prior art references submitted therein, and the deficiencies identified by the Board in its Preliminary Guidance. The original and additional prior art references submitted by Petitioner, individually or when combined, do not render the following limitations of Claim 26-34 obvious for the reason set forth below.

Claims 26 and 29

1) Current supply circuit and PWM controller (Claim 26):

For the reasons set forth in POR (Paper 12 at 27), a POSITA would not be motivated to combined Lys with Grootes or Mueller with Grootes, or that the individual references or, combination of references, teach to the current supply circuits or the PWM controller as claimed. None of the additional prior art references submitted by petitioner address these particular limitations of claim 26, therefore PO submits that the current supply circuits and PWM controller are not obvious.

- 2) a metal core PCB with a polymer coating disposed over a plurality of metal traces (Claim 26):

None of the prior art references disclose a metal core PCB with a polymer coating disposed over a plurality of metal traces. The newly submitted Maeda, Park and Henson pertain to and disclose solid state emitters, but not the PCB or boards to which the LEDs are mounted. Mueller, Grootes and Lys are the only references that explicitly disclose PCBs, but none of those references teach a metal core PCB with a polymer coating disposed over a plurality of metal traces. Xu and Blum do not make up for the lack of disclosure described above, therefore Paten Owner submit that the prior art references, by being wholly silent regarding a polymer coating disposed over a plurality of metal traces, do not render this limitation of Claim 26 obvious.

- 3) Each of the solid state lighting devices comprises at least two or more light emitting diodes each covered by the same encapsulant (Claim 29):

Lys and Mueller do not disclose two light emitting diodes housed within the same encapsulant. Lys and Mueller both demonstrate LEDs disposed within separate encapsulants, (Ex. 1005 Fig. 1) and (Ex. 1009 Fig. 1). Grootes and Xu are generally silent regarding the specifics of the LED packaging and encapsulant, neither reference discloses two or more diodes housed within the same encapsulant. Maeda, Park, and Henson all disclose LED packages, however none of these references

describe multiple light emitting diodes covered by the same encapsulant. Therefore, PO submits that this claim limitation is not obvious.

Claims 27 and 28

- 1) PWM control signals that have a period between approximately 5ms to 0.5ms or a frequency of approximately 200Hz to 2000Hz (Claims 27 and 28):

While some of the references teach PWM signals, specifically Lys, Grootes, Mueller, Blum and Xu, none of them disclose a specific PWM period or frequency. None of the additional references, namely Maeda, Henson, or Park disclose PWM methods. Petitioner has not offered compelling evidence as to why a POSITA would understand that the prior art references between the specific PWM period or frequency range as disclosed by claims 27 and 28, or why a POSITA would implement the claimed range into each reference.

Claims 30-34

- 1) An interconnect mounted on each tile, wherein the interconnect comprises a low-profile configured so as to not interfere with the optical performance of the LEDs (Claims 30 and 31):

None of the references disclose an interconnect that is mounted to the tile. While references such as Lys, Mueller, and Grootes disclose the use of a printed circuit board, there is no explicit mention of an interconnect mounted on each tile.

Petitioner has not presented a reason as to why a POSITA would understand the prior art references to disclose such a feature. Additionally, neither Lys nor Grootes discloses the importance of a low profile interconnect that does not interfere with the optical performance of the LEDs. The rest of the prior art references are silent regarding interconnects, including low-profile interconnects, mounted to multiple tiles. Therefore, none of the prior art references render claims 29 and 30 obvious.

2) Tiles mounted to a metal backplate that contains a through hole (Claim 33):

PO incorporates the arguments with respect to claims 30 and 32 into this section. Lys does not clearly demonstrate that a single housing 800 holds multiple panels 804. Additionally, Lys does not disclose that the housings 800 referred to in Fig.8 comprise a metal backplate with a through holes. None of the other references disclose the claimed feature and therefore claim 33 is not obvious.

3) wherein each tile is coupled to a flexible connector and the flexible connector travels via the through hole to the interconnect mounted on the tile substrate (Claims 32 and 34):

PO incorporates the arguments above with respect to claims 30-31 and 33 into this section. Lys, Mueller, and Grootes do not disclose a flexible connector coupled to each tile or that said flexible connector travels via a through hole in a metal backplate to the interconnect mounted on the tile substrate. Petitioner has not presented compelling evidence that a POSITA would find the prior art references to

disclose such elements or that a POSITA would modify the prior art references to include the claimed elements. The additional prior art references are silent regarding flexible connector coupled to tiles. Therefore, PO submits that that lack of disclosure in all the prior art references renders claims 32 and 34 as non-obvious.

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 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 4, 2024

/Neal Massand/

Neal Massand (Reg. No.
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APPENDIX A

(Proposed Amendments)

26. (proposed substitute for Claim 17) A lighting system, comprising:

a lighting panel including at least a first lighting tile and a second lighting tile,
each lighting tile comprising at least a first string of solid state lighting devices,
and a second strings of solid state lighting devices;

wherein each of said strings ~~that~~ are respectively configured to emit at least
a first light and a second light, respectively;

wherein the brightness of the at least first light and second light is a function
of the duty cycle of the string;

wherein each of the first lighting tile and second lighting tile are arranged
horizontally in the lighting panel;

wherein each of the at least first, and second lighting tiles comprise a metal
core printed circuit board (MCPCB) on which a plurality of patterned metal
traces are formed and having thereon a polymer coating;

at least first and second current supply circuits coupled to the at least first and
second strings of solid state lighting devices, respectively, and configured to
supply an on-state drive current to a respective one of the first and second strings
of solid state lighting devices; ~~and~~

wherein the at least first and second current supply circuits are coupled to the at least first and second strings of solid state lighting devices at least in part by one of the plurality of patterned metal traces formed on MCPCB;

a pulse width modulation (PWM) controller that is coupled to the at least first current supply circuit and the second current supply circuit and that is configured to generate, for each of the at least first current supply circuit and the second current supply circuit, a first PWM control signal and a second PWM control signal that are supplied to the each of the at least first and second strings of solid state lighting devices.

27. (proposed substitute for claim 18) The lighting system according to claim 17 26, wherein the PWM control signals both have a period of approximately 5ms or a frequency of approximately 200Hz. ~~each of the first and second current supply circuits comprises a variable voltage boost, constant current power supply circuit configured to operate in continuous current mode.~~

28. (proposed substitute for claim 19) The lighting system according to claim 18 26, wherein the PWM control signals both have a period greater than 0.5ms or a frequency of less than 2000Hz. ~~each of the first and second current supply circuits comprises: a temperature sensor that is configured to generate a sensor output signal that the PWM controller uses to generate the first PWM signal or the second PWM signal, and a sense resistor that is coupled to an output terminal of the current supply circuit and that is configured to provide a feedback signal to the PWM controller.~~

29. (proposed substitute for claim 23) The lighting system according to claim ~~22~~
26, wherein each of the solid state lighting devices comprises at least two or more
light emitting diodes each covered by the same encapsulant. ~~wherein the first~~
~~current supply circuit provides current control of the first string of solid state~~
~~lighting devices that is independent of current control of the second string of solid~~
~~state lighting devices provided by the second current supply circuit.~~

30. (proposed substitute for claim 24) ~~The lighting system according to claim 22~~
26, wherein an interconnect is mounted on each tile. ~~further comprising a third~~
~~string of solid state lighting devices that are configured to emit a third light that~~
~~includes a dominant wavelength corresponding to a red color.~~

31. (proposed substitute for claim 20) The interconnect according to claim ~~17~~ 30,
comprising a low-profile configured so as to not interfere with the optical
performance of the LEDs. ~~each of the first and second current supply circuits~~
~~comprises a sense resistor that is coupled to an output terminal of the respective~~
~~one of the first and second current supply circuits and that is coupled to a feedback~~
~~input to provide the feedback signal to provide closed loop control.~~

32. (proposed substitute for claim 25) The lighting system according to claim ~~24~~
30 wherein each tile is coupled to a flexible connector. ~~further comprising a third~~
~~current supply circuit that is configured to supply an on-state drive current to the~~
~~third string of solid state lighting devices, and wherein the first current supply~~
~~circuit provides current control of the first string of solid state lighting devices that~~
~~is independent of current control of the second string of solid state lighting devices~~

~~provided by the second current supply circuit and that is independent of current control of the third string of solid state lighting devices provided by the third current supply circuit~~

33. (proposed substitute for claim 21) The lighting system according to claim 20 32, wherein the tiles are mounted to a metal backplate that contains a through hole.
~~further comprising a filter coupled to the sense resistor, the filter configured to filter the feedback input. wherein~~

34. (proposed substitute for claim 22) The metal backplate lighting system according to claim 17 33, wherein the flexible connector travels via the through hole to the interconnect mounted on the tile substrate. ~~the first string of solid state lighting devices are coated with a wavelength conversion phosphor and are configured to emit the first light that includes a combined light including a dominant wavelength corresponding to a blue color and a dominant wavelength corresponding to a yellow color, and wherein the second string of solid state lighting devices are configured to emit the second light that includes a dominant wavelength corresponding to a red color.~~