

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Hisense USA Corporation
Petitioner

v.

Brightplus Ventures LLC
Patent Owner

Patent No. 8,941,331
Filing Date: May 17, 2013
Issue Date: January 27, 2015
Title: SOLID STATE LIGHTING PANELS WITH VARIABLE VOLTAGE
BOOST CURRENT SOURCES

Inter Partes Review No. IPR2023-01401

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

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LIST OF EXHIBITS

EXHIBIT	DESCRIPTION
1001	U.S. Patent No. 8,941,331 (“the ’331 Patent”)
1002	Prosecution History of U.S. Patent No. 8,941,331
1003	Declaration of Rafael Betancourt
1004	Curriculum Vitae of Rafael Betancourt
1005	WO 2005/089293 to Lys (“Lys”)
1006	U.S. 2007/0046485 to Grootes (“Grootes”)
1007	CN 1588523 to Xu (“Xu”)
1008	Certified Translation of Xu
1009	U.S. 2005/0047134 A1 to Mueller (“Mueller”)
1010	U.S. 5,663,667 to Blum (“Blum”)
1011	Counterclaim filed by Patent Owner in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774, Dkt. 9 (N.D. Ga. Sep. 16, 2022)
1012	Scheduling Order in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774, Dkt. 35 (N.D. Ga.)
1013	Judicial Caseload Profile for the Northern District of Georgia
1014	Cover Pleading to Patent Owner’s Infringement Contentions in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774 (N.D. Ga.)
1015	Cover Pleading to Patent Owner’s Supplemental Infringement Contentions in <i>Hisense USA Corp. v. Brightplus Ventures LLC</i> , No. 1:22-cv-02774 (N.D. Ga.) served June 21, 2023
1016	Supertex Inc., HV9910 – Universal High Brightness LED Driver
1017	Supertex Inc., Press Release Announcing HV9910 (May 17, 2004)
1018	US 2005/0227569 to Maeda (“Maeda”)
1019	US 2005/0133800 to Park (“Park”)
1020	US 2005/0140270 to Henson (“Henson”)
1022	Second Betancourt Declaration

I. Introduction

Patent Owner failed to meet the requirements for amendment. The substitute claims inject new matter, broaden claim scope, lack written description, fail to address the grounds of unpatentability, and are indefinite.

Patent Owner's substitute claims merely add admitted prior-art features and attempt to cover a well-known lighting system comprising solid state lighting devices, corresponding current supply circuits, and a pulse width modulation (PWM) controller. The amended features are directed towards (1) a practically ubiquitous and common design for such lighting systems employs two or more tiles configured into a two-dimensional array, and (2) utilizing phosphor to convert blue light into yellow light. Not only these features are well-known in the field and described in the prior art, including the prior art of record in this proceeding, but also Applicant admitted these features as prior art in the Background Section of the '331 Patent. Ex. 1001, 1:54-58.

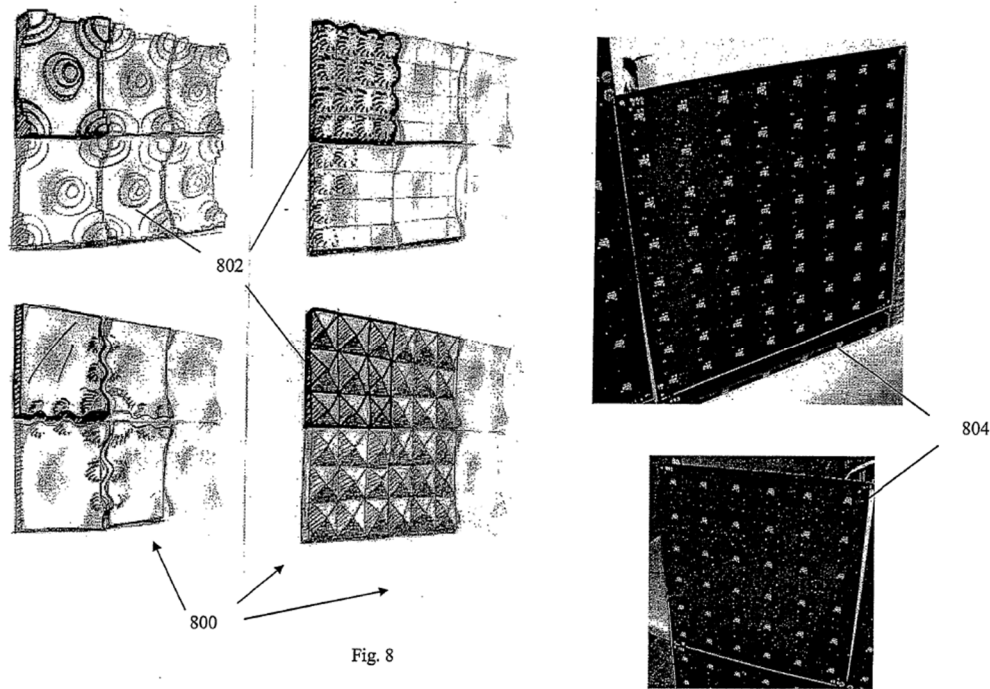
Patent Owner now attempts to capture through substitute claims such admitted, well-known designs. This is improper. The substitute claims are unpatentable. PO's Motion should be denied.

II. The Motion Fails to Comply with Section 316(d) Or Rule 42.121.

A. Patent Owner's Substitute Claims Do Not Respond to Grounds of Unpatentability Involved in the Proceeding

In the Institution Decision (“ID”) the Board found that Lys discloses “at least first and second strings,” for example, through Lys’s teaching that “housings 800” included panels that consist of support platform on which light sources were arranged in an array. Paper 7, 12-13. The Board cited to Lys’s figure 8 and accompany text. *Id.*

PO’s Motion, however, fails to address that Lys in fact teaches multiple rectangular light tiles 802, on which light sources 300 are disposed, arranged in a two-dimensional array as shown in FIG. 8 of Lys. Thus, rectangular light tiles 802 and their two-dimensional configuration read on Patent Owner’s new claimed “at least two rectangular tiles configured into a two-dimensional array” as explained further below. Because the Board already preliminarily decided that Lys taught such structure and arrangements, PO’s Motion does not respond to these findings and should be denied. See, e.g., Ex. 1005, Fig. 8:



B. The Substitute Claims Enlarge the Scope of the Original Claims.

It is improper to broaden the scope of challenged claims or remove features from a claim that result in a broader scope. *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 6 (PTAB Feb. 25, 2019) (precedential).

Patent Owner impermissibly enlarged the claim scope by introducing substitute claim 27, an independent claim that takes original independent claim 17 but eliminates the “lighting panel” element from the first limitation of the original independent claim 17. Although substitute claim 27 adds additional limitations amended from original dependent claim 22, the substitute claim 27 is still boarder than the original independent claim 17 because if a substitute claim “is broader in any respect [it] is considered to be broader than the original claim[] even though it

may be narrower in other respects.” *Sisvel International S.A. v. Sierra Wireless, Inc., et al.*, Case Nos. 22-1387; -1492 (Fed. Cir. Sept. 1, 2023). Here, the substitute claim 27 was broader because it does not require the “lighting panel” element and thus the substitute claim 27 is at least boarder in this respect than the original claim 17. The amendment was improper.

C. The Substitute Claim 26 Violates the Definiteness Requirements

Substitute claim 26 is indefinite. As an initial matter, the limitation “each tile” lacks an antecedent basis. Substitute claim 26 recites “at least two *rectangular* tiles configured into a two-dimensional array; wherein each tile comprises ...”

There is no antecedent basis for the limitation “each tile.”

D. The Substitute Claim 27 Violates the Definiteness Requirements

Substitute claim 27 is profoundly indefinite, subject to different interpretations as explained further below.

As an initial matter, the limitation “said *blue light*” lacks an antecedent basis. Substitute claim 27 recites “a *combined light* including a dominant wavelength corresponding to a *blue color*.” There is no antecedent basis for the limitation “said blue light.”

Substitute claim 27 also fails to particularly point out and distinctly claim the subject matter. Substitute claim 27 recites “the first light that includes a

combined light *including* a dominant wavelength corresponding to a *blue color*.” It remains unclear what the combined light is.

For example, a POSITA may interpret the limitation as “the first light that includes the combined light *having* a dominant wavelength corresponding to a *blue color*.” In other words, the combined light is blue light. However, the components of the blue combined light still remain unresolved. This interpretation (“Interpretation 1” hereinafter) is also against the common practice in the LED space that the blue component (like the red component and the green component) is used as a component to achieve a white light. Ex. 1022, ¶23.

A POSITA may also interpret the limitation as “the first light that includes the combined light including (a blue light having) a dominant wavelength corresponding to a blue color.” In other words, the combined light includes a blue light as a component. This interpretation (“Interpretation 2” hereinafter) would remedy the antecedent basis error (i.e., “said blue light”) discussed above. This interpretation is also consistent with the concept of “combined light.” However, it still remains unclear what other component(s) the combined light includes. Does the combined light include the blue light and the yellow light (i.e., “said blue light interacting with the wavelength conversion phosphor containing element to produce a dominant wavelength corresponding to a yellow color.”)? If the Patent

Owner intended to claim this, substitute claim 27 could have been drafted differently in a more definite manner.

In short, substitute claim 27 is profoundly indefinite, thereby leaving it open to multiple interpretations. The antecedent basis error makes it even worse.

E. The Substitute Claim 27 Adds New Matter and Violates the Written Description Requirements

Substitute claim 27 violates the written description requirements and injects new matter. The '331 Patent generally mentions, at Background, white LED lighting devices that include a blue-emitting LED coated with a wavelength conversion phosphor, and that the phosphor converts some of the blue light emitted by the LED into yellow light. Ex. 1001, 1:54-58. The Detailed Description mentions phosphors only once. As shown in FIG. 2, the LEDs 16A-16D are covered by an encapsulant 14, which may be clear and/or may include light scattering particles, phosphors, and/or other elements to achieve a desired emission pattern, color and/or intensity. Ex. 1001, 7:34-38. In other words, phosphors are disclosed, at best, as one of multiple examples of components of the broad concept of an “encapsulant.”

There is no support in the specification for “the first light that includes a *combined light* including a dominant wavelength corresponding to a blue color, [and] said blue light interacting with the wavelength conversion phosphor

containing element to produce a dominant wavelength corresponding to a yellow color,” in the manner recited in substitute claim 27.

First, as to the Patent Owner’s use of the term “wavelength conversion phosphor containing element”, such term finds no *ipsis verbis* support in the specification. *Nuvo Pharm v. Dr. Ready’s Lab.*, 923 F.3d 1368 (Fed. Cir. 2019) (holding that even where language appears in *ipsis verbis* Section 112 may not be met). The ’331 Patent never defines this limitation. Is the wavelength conversion phosphor containing element identical to a phosphor? No embodiment, figure, or text describes or explains the scope or bounds of what this limitation means.

Second, due to the lack of written description of the limitation “wavelength conversion phosphor containing element,” Patent Owner cannot, therefore, prove written description of “interacting with the wavelength conversion phosphor containing element to produce a dominant wavelength corresponding to a yellow color.”

Third, at least under Interpretation 1, the specification of the ’331 Patent provides no support for the first light that includes a *combined light* including a dominant wavelength corresponding to a blue color, [and] said blue light interacting with the wavelength conversion phosphor containing element to produce a dominant wavelength corresponding to a yellow color. As articulated above, the combined light is blue light under Interpretation 1. The specification of

the '331 Patent discloses, at best, a blue LED chip 16C, which may be InGaN-based blue LED chip and different wavelengths of light generated by different LED strings (e.g., a red LED string and a blue LED string). Ex. 1001, 7:12-15; 11:4-6. When red, green, and blue light emitting devices are energized simultaneously, the resulting combined light appears white, or nearly white. Ex. 1001, 2:17-21. The specification fails to disclose a combined light that is blue.

Finally, even under Interpretation 2, these claim elements are well known, admitted as prior art by the Applicant in the Background Section, as described *infra*. In short, these claim elements either lack written description under Interpretation 1 or are well known under Interpretation 2.

III. The Proposed Substitute Claims 26 and 27 Are Not Patentable in View of the Prior Art Used in the Original Grounds and other New Prior Art References.

A. Substitute Claim 26: Prior Art Involved in the Original Grounds Discloses Rectangular Tiles Configured into a Two-dimensional Array

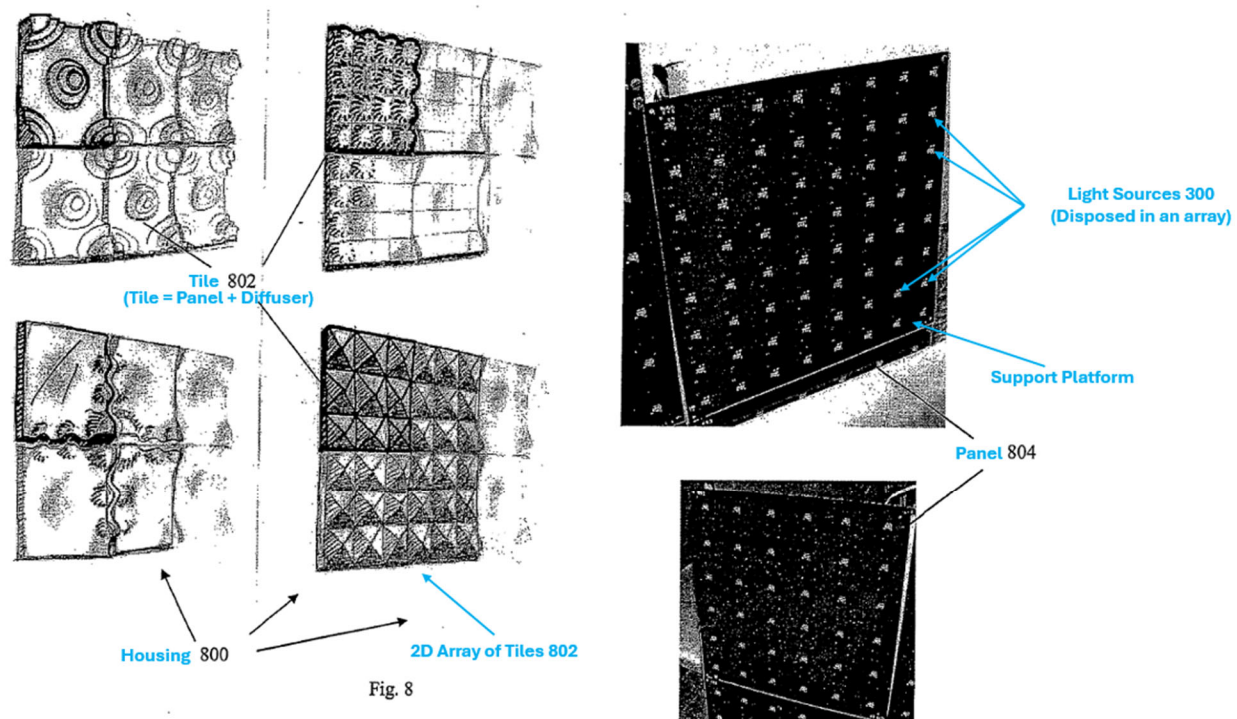
Configuring multiple tiles into a two-dimensional array is well-known. In fact, the '331 Patent admits so. Ex. 1001, 2:30-33 (“For larger display and/or illumination applications, multiple solid state lighting tiles may be connected together, for example, in a two dimensional array, to form a larger lighting panel.”).

As an initial matter, Patent Owner is wrong that Lys is silent about a backlighting unit for an LCD display panel. In fact, the lighting system discussed in Lys may include a lighting system for a large-scale display. Ex. 1005, 26:8-9.

Patent Owner also mistakenly concludes that Lys is silent about a backlighting unit comprising a lighting bar assembly containing two rectangular tiles configured into a two-dimensional array. In fact, Lys discloses rectangular tiles configured into a two-dimensional array in multiple instances and embodiments, as articulated *infra*.

Lys describes that a lighting unit 102 is an apparatus including one or more light sources 300 and may have any one of a variety of mounting arrangements for the light sources 300 in a variety of housings 800. Ex. 1005, 49:7-10. Further, housings 800 may include enclosures, platforms, boards, mountings, and the like and may be made of any material, such as metals, alloys, plastics, polymers, and the like. Ex. 1005, 49:10-13.

As further shown in FIG. 8, the housing 800 includes rectangular tiles 802 configured into a two-dimensional array, and each tile 802 is comprised of a panel 804 and a diffuser 502. Ex. 1005, 49:15-17; FIG. 8. Each panel 804, and therefore each rectangular tile 802, includes a support platform and light sources 300 disposed in an *array* on the support platform. Lys further states that the light tile 802 can be of any shape, such as square, *rectangular*, triangular, circular, and the like. Ex. 1005, 49:18-19.



Ex. 1005, Fig. 8 (annotated).

Therefore, Lys discloses a lighting bar assembly (the housing 800) containing at least two rectangular tiles (the rectangular tiles 802) configured into a two-dimensional array (the two-dimensional array as denoted in annotated FIG. 8). Importantly, each panel 804, and therefore each rectangular tile 802, comprises light sources 300 disposed in an array, which includes “at least first and second strings of solid state lighting devices” (one row or one column of the light sources 300 in the array as denoted in annotated FIG. 8) recited in substitute claim 26. Thus, the housing 800, the rectangular tiles 802, and the light sources 300 correspond to the “lighting bar assembly,” the “rectangular tile,” and the “solid state lighting devices” recited in substitute claim 26, respectively.

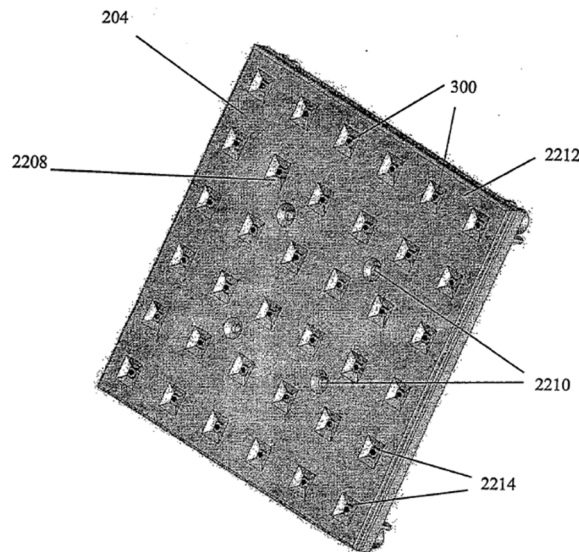
Moreover, Lys also discloses that lighting units 102 can include LEDs that produce different colors or wavelengths of light. Ex. 1005, 34:16-23. Thus, Lys discloses “at least first and second strings of solid state lighting devices” (e.g., rows or columns of light sources 300 in the array as denoted in annotated FIG. 8)” and “respectively configured to emit at least a first light and a second light” (LEDs that produce different colors or wavelengths of light).

In addition, Lys further discloses a “structural element for bearing a plurality of LEDs” and that the structural element may be designed to allow tiling of structural elements to fill a portion of a two-dimensional plane. Ex. 1005, 23:28-31; 24:2-4. The structural element is designed to facilitate the construction of a two-dimensional lighting structure or a rectangular solid lighting structure. Ex. 1005, 24:7-8; 24:15-16.

Furthermore, Lys states that utilizing a light source 300 with a specific shape, size, and feature set that can be repeated many times throughout the lighting unit 100 for reasons of both manufacturability and simplicity of design. Ex. 1005, 66:7-9. The lighting unit 100 might touch other such lighting units 100 edge to edge or face to face and could be considered a “*tile*.” Ex. 1005, 66:9-13. A number of such tiles in proximity to each other, touching edge to edge or face to face, would constitute a tessellation. Ex. 1005, 66:13-14. A POSITA would have readily understood that the lighting unit 100 could be in a rectangular shape configured into a 2D array, and the

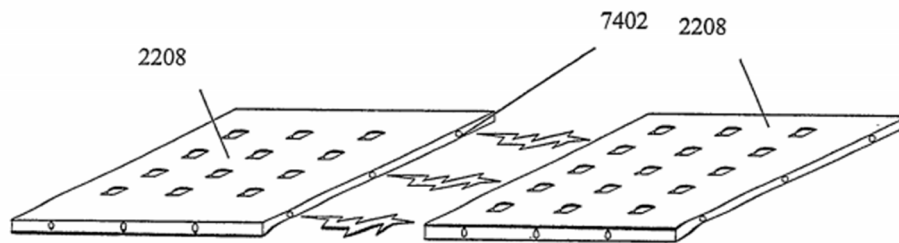
light source 300 are repeated in the form of strings, “for reasons of both manufacturability and simplicity of design” as Lys states. Thus, the tessellation, the lighting unit (a “tile”) 100, and the light sources 300 correspond to the “lighting bar assembly,” the “rectangular tile,” and the “solid state lighting devices” recited in substitute claim 26, respectively.

Additionally, as shown in FIG. 22b, a rectangular board 204 with an array 2208 of light sources 300 is disclosed. Ex. 1005, 68:18-19. The light sources 300 may consist of miniature groups of LEDs, such as red, green, blue, white, or other colors of LEDs. Ex. 1005, 68:21-23. The square array makes it very convenient for the array 2208 to be placed side by side with other boards 204 containing similar arrays 2208, and the arrays 2208 can serve as modular components of larger lighting systems. Ex. 1005, 68:24-28.



Ex. 1005, Fig. 22b.

Moreover, Lys further discloses that the boards 204 holding the array 2208 are fitted with magnetic facilities 7402 along the sides for fastening one board 204 to another. Ex. 1005, 145: 18-20. In other words, the boards 204 are fastened together and would be readily configured into a two-dimensional array (e.g., four boards 204 in a two-by-two array) in view of the teachings of Lys.



Ex. 1005, Fig. 74.

Accordingly, as shown in FIGS. 22b and 74, Lys teaches rectangular boards (the “rectangular tile”) 204, serving as modular components of a larger structure (the “lighting bar assembly”), with strings of light sources 300 (the “solid state lighting devices”) disposed in an array thereon.

Lys presents a general framework of a lighting unit 102 including one or more light sources with reference to figure 1 and further explores various more detailed structures and configurations shown in, for example, figures 3, 8, 22b, and 74. Ex. 1005, 49:7-13; 23:28-31; 24:2-4; 24:7-8; 24:15-16; 34:17-23; 34:30-35:8; 66:7-14; 68:18-28; 145:18-20. Therefore, a POSITA would readily modify or combine Lys’s

teachings of these more detailed implementations across Lys's lighting systems. Ex. 1022, ¶21.

In summary, Lys discloses multiple examples of a lighting bar assembly containing rectangular tiles configured into a two-dimensional array. Patent Owner overlooks the prior art of the record, including portions of Lys already relied on by the Board in its institution decision, and its proposed substitute claim is unpatentable.

B. Substitute Claim 27: Prior Art Involved in the Original Grounds and Other Prior Art Disclose Converting Blue Light into Yellow Light Using a Phosphor

Although drafted as an independent claim, substitute claim 27 incorporates all claim elements recited in original claim 17 with the exception of deleting the element “a lighting panel” mentioned *supra*. As have been proven in the Petition, these claim elements are taught or suggested by the prior art. Petition, 17-28 and 45-55.

Converting blue light into yellow light using a phosphor is well known. In fact, the '331 Patent itself admits converting blue light emitted by LED into yellow light is prior art by discussing it at Background. Ex. 1001, 1:54-59. Specifically, the Background states, “backlight assemblies *typically* employ white LED lighting devices that include a blue-emitting LED coated with a wavelength conversion *phosphor* that converts some of *the blue light* emitted by the LED into *yellow light*.” Ex. 1001, 1:54-58. Thus, using a blue LED light in combination with a yellow

phosphor to created light that appears white was something those of skill in the art were familiar with prior to the '331 patent.

Not surprisingly, Lys, among other prior art, discloses these limitations recited in substitute claim 27 under Interpretation 2 discussed *supra* (Petitioner has proven that these limitations are new matter and violate written description requirements under Interpretation 1).

Patent Owner erroneously argues that Lys fails to disclose a wavelength conversion phosphor containing element that produces a dominant wavelength corresponding to a yellow color from the blue light. Motion at 15.

In fact, Lys explicitly describes “a phosphor for shifting a wavelength of light emitted from one or more of the plurality of LEDs” and that the phosphor is considered as an integral part of the LED. Ex. 1005, 3:15-16; 38:8-9. In fact, Lys specifically states that “[t]he plurality of LED light sources may include one or more blue LEDs that include a phosphor.” *Id.*, 4:16-17.

Lys further discloses the wavelength conversion nature of a phosphor, stating that the phosphor material “convert[s] luminescence having a first spectrum to a different second spectrum.” Ex. 1005, 37:28-30. Lys further describes that the plurality of LED light sources may include one or more “*blue LEDs* that include a *phosphor*.” Ex. 1005, 6:16-17. And Lys further teaches that such blue LEDs create white light. Ex. 1005, 36:11-13 (“the addition of white LEDs (typically produced

through a blue or UV LED plus a phosphor mechanism) does give a ‘better’ white....”). A POSITA would know that the produced light by the phosphor is yellow light. Ex. 1022, ¶26.

Accordingly, Lys teaches “the combined light including (a blue light having) a dominant wavelength corresponding to a blue color.”

C. Substitute Claim 27: Other New Prior Art References Disclose Converting Blue Light into Yellow Light Using a Phosphor

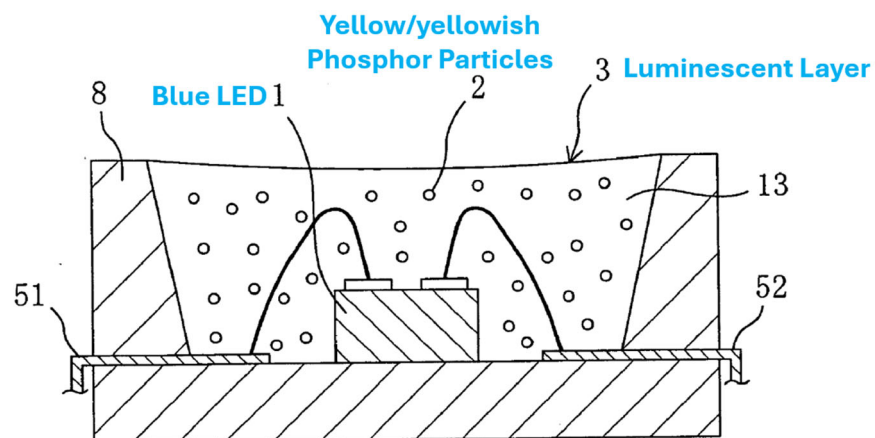
Other prior art references disclose these limitations recited in substitute claim 27. A POSITA would have been motivated to combine the Lys-Grootes-Xu combination in the original Grounds with one or more of prior art references set forth in more details *infra*.

Consistent with the admission in the ’331 Patent, multiple prior art references disclose converting blue light emitted by a blue LED into yellow light using a wavelength conversion phosphor element, thereby rendering substitute claim 27 obvious under Interpretation 2 discussed *supra*.¹

For example, Maeda (Ex. 1018) generally relates to “light-emitting semiconductor devices utilizing blue-light-emitting diodes ... and yellow/yellowish

¹ Of course, under Interpretation 1 in Section II.D, Petitioner has already shown, in Section II.E, how these limitations are new matter and violate the written description requirements.

phosphors in combination to emit white light.” Ex. 1018, ¶1. As shown in the embodiment illustrated in FIG. 3, a chip-type LED includes a blue LED 1 placed in the recess of the casing 8 and a luminescent layer 3 formed in the casing 8, and the luminescent layer 3 is made of a mixture of yellow/yellowish *phosphor particles* 2 and a base material (e.g., resin) 13. Ex. 1018, ¶178, 180, 181. The blue LED 1 emits light having a main emission peak in the wavelength range greater than 430 nm and less than or equal to 500 nm, and the yellow/yellowish phosphor particles 2 are phosphors, which absorb blue light emitted by the blue LED 1 to emit a luminescence having a main emission peak in the wavelength range from 550 nm to 600 nm. Ex. 1018, ¶181. A POSITA would know that blue light is characterized by a wavelength between 450 nm and 485 nm, and yellow light is characterized by a wavelength between 565 nm and 590 nm. Ex. 1022, ¶32. Maeda also discusses obtaining “excellent white light” by way of combination. Ex. 1018, Abstract and ¶42.



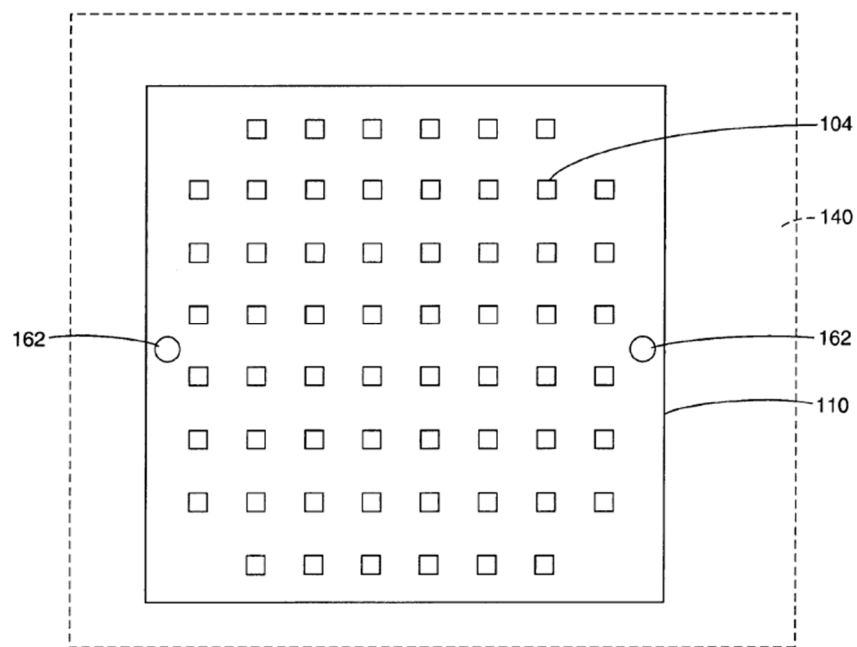
Ex. 1018, Fig. 3 (annotated).

Therefore, Maeda discloses a wavelength conversion phosphor containing element (the luminescent layer 3 containing the yellow/yellowish phosphor particles 2) and covering a solid state lighting device (the blue LED 1) with it to convert the blue light into yellow light.

Park (Ex. 1019) generally relates to an LED series array. Ex. 1018, ¶2. Stacked-chip semiconductor light emitting devices (e.g., those shown in FIGS. 10-12) are utilized. Ex. 118, ¶95. Park expressly states that, “The *simplest* and the *most popular* method of generating white light is using wavelength converting phosphors on top of a light energy LED chip.” Ex. 1018, ¶99. One typical implementation is coating a blue LED chip with a phosphor, which converts *some of* the blue light into yellow, and when “yellow and blue colors mix together in the phosphor layer, (a mixture of a thermosetting polymer and a phosphor), the escaping light becomes white.” Id.

Thus, Park discloses a wavelength conversion phosphor containing element (the phosphor layer, which is a mixture of a polymer and a phosphor) and covering (coating) a solid state lighting device (the LED chip) with it. Park also specifically discloses that the blue light interacts with the wavelength conversion phosphor containing element to produce yellow light (“converts some of the blue light into yellow”) and a combined light is emitted (“when yellow and blue color mix together ..., the escaping light becomes white”).

Henson (Ex. 1020) generally relates to a solid state light device. Ex. 1020, ¶3. Henson teaches a solid state light device 100, which comprises an array of solid state radiation sources 104. Ex. 1020, ¶¶28-29, FIGS. 1B and 2. Henson further describes that multiple bare blue LED dies can be utilized, and one or more of these blue LED dies can be coated, preferably on a light-emitting surface, with a phosphor layer, such as YAG:Ce phosphor. Ex. 1020, ¶32. A portion of the *blue light* from the blue LED die is mixed with the phosphor-converted *yellow light* to effectively generate “white” light. Id.



Ex. 1020, Fig. 2.

Accordingly, Henson discloses solid state lighting devices (blue LED dies 104 configured in an array) and covering (coating) them with a wavelength conversion phosphor containing element (YAG:Ce phosphor). Henson further discloses that the

blue light interacts with the wavelength conversion phosphor containing element to produce yellow light (“a portion of the blue light from the blue LED die is mixed with the phosphor-converted yellow light”) and a combined light is emitted (“to effectively generate ‘white light’”).

In summary, Maeda, Park, and Henson, independently or collectively, disclose the solid state lighting devices that are covered with a phosphor and are configured to converting blue light into yellow light using the phosphor.

IV. One of Skill in The Art Would Have Been Motivated to Combine the Features of the Prior Art with Either Ground I or Ground II

First, as to existing art, such as the disclosures of Lys, those features are found explicitly in the art already of record. For the same reasons articulated in the Petition, such features would have been combined or used with the existing disclosures. Lys’s disclosures in relation to tiles simply provide additional details of how the light sources are configured, while Lys’s disclosures in relation to wavelength conversion simply provide additional details of how the light sources function in some embodiments. Accordingly, such teachings are readily combinable with the prior art in the Grounds as set forth in the Petition. Ex. 1022, ¶38.

Second, as to new art, such disclosures are readily combinable with the art in the existing grounds. As described *supra*, Maeda relates to light-emitting semiconductor devices utilizing blue-light-emitting diodes and yellow/yellowish phosphors in combination to emit white light. Maeda provides additional details

regarding how a blue LED that includes a phosphor creates white light. To the extent that it is not readily apparent to a POSITA based on Lys's disclosure, the POSITA would readily look to the teachings of Maeda for the additional details in implementing Lys's system that uses "*blue LEDs that include a phosphor*" to create white light, as explicitly disclosed by Lys. Ex. 1005, 6:16-17, 36:11-13. Incorporating Maeda's teaching into Lys's system (e.g., using blue-light-emitting diodes and yellow/yellowish phosphors in combination to emit white light) would have been well within a POSITA's skills and provided predictable results. Ex. 1022, ¶41. In fact, such a conventional implementation detail is what the '331 patent already admits as "typical", i.e. using white LED lighting devices "that include blue-emitting LED coated with a wavelength conversion phosphor that converts some of the blue light emitted by the LED into yellow light." Ex. 1001, 1:54-58.

Moreover, Maeda aims to address the unevenness in the emitted light. Ex. 1018, ¶37. A POSITA would be motivated to introduce the teachings of Maeda to improve emitted light uniformity. Ex. 1022, ¶43.

Similar to the rationales to combine Maeda with Lys, a POSITA would have found it obvious to combine Lys with Park or Henson. Park relates to an LED series array, and it aims to provide and employ low-cost white light LED arrays, which is the same endeavor as Lys. Ex. 1019, ¶14. Similarly, Henson relates to a solid state light device having an array of solid state radiation sources 104, and it attempts to

achieve a higher light utilization. Ex. 1020, ¶7. A POSITA would readily look to the teachings of Henson because Henson is in the same endeavor as Lys.

These disclosures would be highly relevant to one of skill in the art designing lighting systems and attempting to improve design flexibility and achieve better white light. Ex. 1022, ¶46. Thus, a person of ordinary skill in the art would be motivated to modify the art presented in the original grounds to include the additional disclosures of Maeda, Park, or Henson to provide increased modular design flexibility and better white light. *Id.*

V. Conclusion

Patent Owner's substitute claims are unpatentable.

Respectfully submitted,

By: /s/ Matias Ferrario

Matias Ferrario

Registration No. 51,082

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this
**PETITIONER’S OPPOSITION TO PATENT OWNER’S CONTINGENT
MOTION TO AMEND** has been served via email on the following:

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Dated: September 23, 2024

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