

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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QUASAR SCIENCE LLC,  
Petitioner,

v.

COLT  
INTERNATIONAL  
CLOTHING, INC. d/b/a  
COLT LED,  
Patent Owner.

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Case IPR2023-00611  
Patent 10,197,224

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**PATENT OWNER'S PRELIMINARY RESPONSE**

**UNDER 37 C.F.R. § 42.107**

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## **EXHIBIT LIST**

### **Currently Filed – Patent Owner**

| <b>Ex. No.</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                          |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001           | Mac Tech LED FAQ web page, Mac Tech LED, Sun Valley, CA, Nov. 28, 2014, printed/accessed from <a href="https://web.archive.org/web/20141128184548/http://www.mactechled.com/faq/">https://web.archive.org/web/20141128184548/http://www.mactechled.com/faq/</a>                                                             |
| 2002           | Mac Tech LED FAQ web page, Mac Tech LED, Sun Valley, CA, April 1, 2017, printed/accessed from <a href="https://web.archive.org/web/20170401011340/http://www.mactechled.com/faq/">https://web.archive.org/web/20170401011340/http://www.mactechled.com/faq/</a>                                                             |
| 2003           | U.S. Patent Publication No. 2003/0072156 to Pohlert <i>et al.</i> (Pohlert)                                                                                                                                                                                                                                                 |
| 2004           | U.S. Patent Publication No. 2004/0105261 to Ducharme <i>et al.</i> (Ducharme ‘261)                                                                                                                                                                                                                                          |
| 2005           | U.S. Patent No. 7,646,029 to Mueller <i>et al.</i> (Mueller ‘029)                                                                                                                                                                                                                                                           |
| 2006           | U.S. Patent Publication No. 2010/0102730 to Simon <i>et al.</i> (Simon ‘730)                                                                                                                                                                                                                                                |
| 2007           | “The Vitec Group plc changes its name to Videndum plc,” by Marchetti, May 2022, printed/accessed from <a href="https://videndum.com/media/videndum-in-action/the-vitec-group-plc-changes-its-name-to-videndum-plc/">https://videndum.com/media/videndum-in-action/the-vitec-group-plc-changes-its-name-to-videndum-plc/</a> |

## **I. INTRODUCTION**

Colt International Clothing, Inc., Inc. d/b/a Colt LED (“Colt” or “Patent Owner”), the owner of U.S. Patent No. 10,197,224 (“the ’224 Patent”), submits this Preliminary Response to the Petition of Quasar Science LLC (“Quasar” or “Petitioner”) challenging the validity of claims 1, 3, 4, 7-13, 23, 25, 26, 28-39 and 41-45 of the ’224 Patent.

The invention claimed in the ’224 Patent improves an LED tubular luminaire of a narrow, 41 mm diameter, for the entertainment industry (e.g., for filming for TV and motion pictures) by combining broad-spectrum white light LEDs with colored LEDs to achieve a luminaire that can provide color effects and also provide suitable white light needed for filming. In a preferred embodiment, the white light produced may be selected between daylight and tungsten which facilitates filming without having to change the lights and thus saves greatly on labor. In another preferred embodiment, the colored LEDs are red, green, blue, amber along with the broad-spectrum white light. In a further embodiment, the colored LEDs are driven at 1/255 increments to provide 255 colors of output to match the color wheel used in the entertainment industry. The invention provides substantial flexibility for the luminaire’s usage for filming without the need to change luminaires or filters.

Institution should be denied for both discretionary and substantive reasons. First, the Board should exercise its discretion to deny institution under 35 U.S.C. §

325(d) “because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Petitioner presents Grounds 1 and 2 of unpatentability based on proposed combinations of six references, namely, Kit (Ex.1004), Ducharme (Ex. 1005), Katzir (Ex.1010), Mueller (Ex. 1006), Ivey (Ex.1008) and Ansems (Ex. 1007). **Five of the six** references in Petitioner’s proposed combinations are the same as or an equivalent of (or closely related to) the art that was already presented to the Patent Office. The sixth reference, Ansems, teaches nothing beyond what was taught by Kit and therefore is cumulative, as Kit was already presented to the Office. Not only does the Petition fail to make any substantive attempt to distinguish its cited references from the art presented to the Office and/or demonstrate any error by the Office, but also the Petition mistakenly asserts that certain references and equivalents thereof were not presented to the Office. For example, Petitioner’s asserts that “Ducharme itself was not cited during prosecution” and “[n]or did the Examiner consider, or rely on, Mueller, Ansems, or Ivey, or any reference substantially similar.” But an equivalent or substantial equivalent of Mueller, Ducharme and Ivey were presented to the Office, and Kit has substantially equivalent teachings to Ansems, such that Ansems is cumulative.

Second, the Board should deny the Petition based upon the merits, because Petitioner has not established a reasonable likelihood that it will prevail on Grounds 1 and 2. The art cited in the Petition fails to disclose or render obvious multiple limitations for the claimed “LED lighting device configured for providing light

suitable for a commercial image recording,” including failing to disclose:

(1) Claim element 1[c] which provides, in pertinent part:

an array of LED emitting devices...configured to emit five different colors...: a first set of LED emitting elements configured to emit light of a first color; a second set of LED emitting elements configured to emit light of a second color; a third set of LED emitting elements configured to emit light of a third color; a fourth set of LED emitting elements configured to emit light of a fourth color; and a fifth set of LED emitting elements configured to emit a broad-spectrum white light within a predetermined Kelvin temperature range.

(2)\_ Claim element 1[e] recites “an LED driver ... configured to selectively provide electrical power to the array of LED emitting devices.”

(3)\_ Claim element 1[f] provides: “wherein the housing has a linear form factor substantially that of a fluorescent tube having an axial direction and having a diameter of no greater than about 41 mm....”

Ex. 1001 at claim 1, 1[pre], 1[c], 1[e] and 1[f]. (claim 1[e]). For example, neither

primary reference (Kit and Mueller) discloses or suggests an embodiment with five colors of LEDs, with one being broad-spectrum white light. Kit only teaches white LEDs or colored LEDs instead of white. Mueller provides a laundry list of colored LEDs and a separate laundry list of potential luminaire form factors, but e.g., provides insufficient guidance for rendering obvious the claimed color combination with broad spectrum white and for the combination as used on a tubular luminaire of no more than 41 mm.

Moreover, Petitioner fails to meet its burden to provide adequate explanation regarding motivation to combine the references supporting Grounds 1 and 2, including, *inter alia*, failing to demonstrate a reasonable expectation of success of the proposed combination of Kit with Ducharme and Katzir, because at best Ducharme would only modify Kit's white light embodiment. There would be no multicolored LEDs in that white light embodiment. In addition, e.g., there is no reasonable motivation to modify Mueller by Simon which is directed to an emergency alarm or by Ansems which appears to be a flat panel light and in any event lacks any suggestion of use on a tubular luminaire.

With regard to the dependent claims, they are patentable at least by virtue of their dependencies.

Further, Petitioner has also failed to establish a reasonable likelihood that it will prevail on Ground 1 or Ground 2 with respect to dependent claims 3, 4, 10 and

11, along with remaining dependent claims having the same subject matter. E.g., there is no teaching in any of the references of the colored LEDs being driven at 1/255 increments to provide 255 colors of output to match the color wheel. There is no teaching of the LEDs being red, green, blue, amber and broad-spectrum white light. And there is no teaching of the white light produced being selected between both daylight and tungsten.

For these reasons, Patent Owner respectfully submits that this Petition does not warrant institution.

## **II. THE '224 PATENT PRESENTS A NOVEL TUBULAR LED LUMINAIRE WITH MULTIPLE COLORS OF LEDS WHICH CAN BE USED SELECTIVELY TO LIGHT A SET WITH WHITE LIGHT AND ALSO TO PROVIDE COLOR EFFECTS**

### **A. Background of the Invention in the '224 Patent**

Prior to the invention in the '224 Patent, the entertainment industry lacked a tubular multicolored LED luminaire that could be used selectively on set in productions that had the versatility to be used both for color effects and to provide white light for such set. Use of the fluorescent tube form factor for the industry was limited to, e.g., one color LED, particularly when it came to white light usage. For example, in 2014, an entertainment industry producer Mac Tech LED tubes were only a single color. See, Ex. 2001, p. 1 (“Are Mac Tech LED tubes bi-color? Mac Tech LED tubes are **single** color enclosures. We have found by comparison, that in producing a **single** color lamp we gain greater efficiency and truer, more consistent color reproductions.”)(emphasis

added). Mac Tech’s website continued the **single**-color tube lamp regime up through at least April 1, 2017, the day after the application leading to the ‘224 Patent was filed. See, Ex. 2002, p. 1 (“Are Mac Tech LED tubes bi-color? Most of our product line is single color for higher output, either 3200k or 5600k.”)

An LED luminaire “designer would have extremely limited circuit board space with the T12 or T8 linear tube form factor (no more than a one-and-a-half-inch width) for heat sinking and placing LEDs....” Ex. 1001 at 3:53-56. See also, e.g., Ex. 2003 (Pohlert) at Abstract (LED lighting device) and at [0012](“fluorescent lighting systems are generally tube-shaped, which can limit the lighting configuration or mounting options.”)

At the time of the invention, there were primarily two ways to produce white light using LEDs, one was to use “broad-spectrum” white LEDs and the other to blend red, green and blue (“RGB”) LEDs. Due to the limited space on a tubular LED, a designer would be expected to choose one or the other, but not both RGB and broad-spectrum white light.

Prior to the invention, there were no multicolored LED tubes that also had broad-spectrum white light to be suitable for commercial image recording quality, not only due to limited space on the T12 and T8 fluorescent form factor, but also due to managing heat in a precision production light from an encapsulated tube, which would effect light color and output during filming. E.g., Ex. 2001 at 4:5-12. The Kit

patent cited by Petitioner is an example of this in that Kit teaches a white light embodiment and a colored LED embodiment, but not both: “Another circuit module can be a color effects module for use with color LEDs **instead of white LEDs....**” Ex. 1004 at 24:27-28 (emphasis added).

### B. The Solution Presented by the '224 Patent

The '224 Patent provides a luminaire that not only has colored LEDs, but also includes broad-spectrum white light LEDs. See Ex. 1001 at 18:49-51. The luminaire is tubular. Ex. 1001 at e.g., Figs. 2 and 3 and Title (“Multicolored Tube Light with Improved LED Array”). As shown in Fig. 3 and e.g., Fig. 9A, a circuit board (“Pcb 52”) has red, green, blue, amber and white LEDs (“RBG 212”; “W 214,” “A 216”):

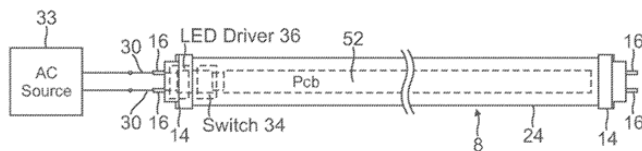


FIG. 3

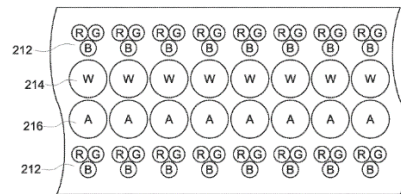


FIG. 9A

Ex. 1001 at Figs. 3 and 9A, and at 16:67 to 17:7.

The '224 Patent's novel lighting control system is for use with a camera operable to record moving images, as in e.g., broadcasting, cinematography and studio filming. Ex. 1001 at 22:55-64-68 and 23:1-3.

In an important embodiment, the white light produced by the luminaire includes both white light in the daylight and tungsten ranges of broadcast quality.

Ex. 1001 at 22:56-67. The ability to have white light of image recording quality in these two ranges and also to produce multiple colors, provides for a very flexible tubular LED luminaire suitable for the image recording industry without changing out lighting or manual adjustments such as using gels or filters.

In another embodiment, the LED driver is configured to drive each of the RGBAW LEDs in increments of 1/255 to produce 255 colors to match the film industry color wheel's colors. Ex. 1001 at 23:12-35 and 17:7-15.

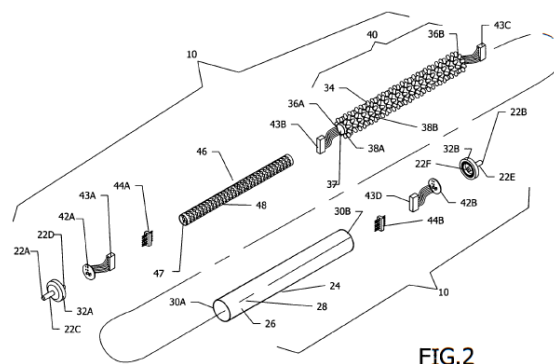
### III. OVERVIEW OF THE ALLEGED PRIOR ART

#### A. Kit (Ex. 1004)

Kit discloses an “**energy saving** device for an LED lamp mounted to an existing fixture for a fluorescent lamp where the ballast is removed or bypassed.”

Ex. 1003, Abstract (first two lines)(emphasis added).

Fig. 2 is an exploded view of an embodiment of the lamp:



Ex. 1004 at Fig. 2.

Kit focuses on energy savings for “general lighting fixtures,” e.g.:

To reduce electrical cost and [for] reliability, LED lamps have been developed to replace the conventional incandescent lamps typically used in existing **general lighting fixtures**. LED lamps consume less energy than conventional lamps and give much longer lamp life.

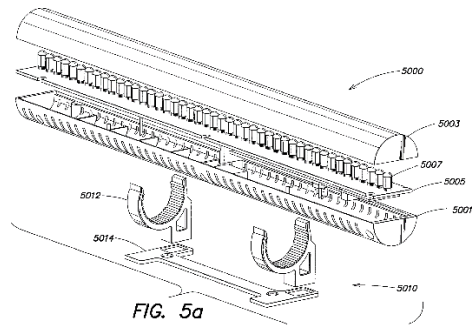
Ex. 1004 at 13:34-38 (emphasis added); see also, at 14:63-65 and at 15:6-8.

There is no mention of lighting for commercial image recording, but only for general lighting. Ex. 1004 at 13:39-43 and 16:4-9 (both referring to “general lighting”).

In one embodiment Kit discloses use of white light LEDs and in another embodiment, Kit discloses use of colored LEDs. Ex. 1004 at 24:27-29 (multicolored instead of white). There is no disclosure of using broad-spectrum white light LEDs **in combination with** colored LEDs.

#### **B. Ducharme (Ex. 1005)**

Ducharme discloses “Conventionally-Shaped Light Bulbs Employing **White LEDs**” Ex. 1005, Title (emphasis added). Fig. 5a shows an LED tube, as one possible type of luminaire of many different shapes:



The background discusses color temperature and CRI as ways of characterizing white light and mentions that “it is desirable for those involved in visual art to be able to produce exact colors of light....” Ex. 1005 at 3:1-2.

Ducharme seeks lighting fixtures with desired color temperature which may be modified “after a lighting fixture is constructed.” Ex. 1005 at 4:40-44.

Disclosed is a first embodiment which comprises a lighting fixture for generating **white light** [with] electromagnetic radiation of at least two different spectrums (including embodiments with exactly two or exactly three), each of the spectrums having a maximum spectral peak outside the region 510 nm to 570 nm, the illumination sources mounted on a mounting allowing the spectrums to mix so that the resulting spectrum is substantially continuous in the photopic response of the human eye and/or in the wavelengths from 400 nm to 700 nm.

Ex. 1004 at 4:49-59 (emphasis added). In one embodiment, Ducharme’s precision

color temperature luminaire may be used to supplement “light sources such as mercury vapor lamps [and] may have particular use in cinematography.” Ex. 1004 at 32:40-45.

### C. Katzir (Ex. 1010)

Katzir is directed to a “lighting assembly [that] can replace a fluorescent tube light” formed by “a tube, a light emitting diode panel..., a circuit board..., and insulation....” Ex. 1010, Abstract. Katzir’s tubular white LED luminaire is shown in Fig. 1C, reproduced below:

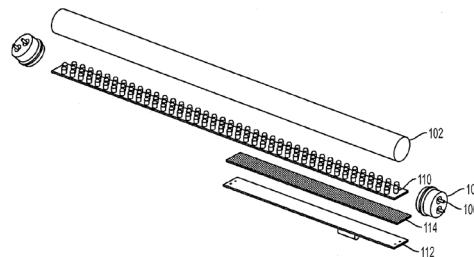


FIG. 1C

Katzir’s embodiments are directed to **white light**. Katzir has white LEDs in two or three color temperatures, e.g., tungsten and daylight and further including, in some embodiments, a mid-point color temperature white. Ex. 1010 at Figs. 5A-5F and [0053]-[0054]. Katzir’s purpose is to **blend** these different white color temperatures to minimize green output. [0051] (“By combining the two-color temperature ranges within one bulb, the overly green/blue tones and harshness of the fluorescent bulbs and the overly yellow and dim qualities created by tungsten bulbs are eliminated.”) Katzir does not mention any use of broad-spectrum white light and does not mention any use for filming.

#### **D. Mueller (Ex. 1006)**

Mueller discloses LED-based lighting units. Ex. 1006 at Abstract. Mueller provides a general disclosure of lighting unit shapes, e.g., showing three different configurations in Fig. 3. Ex. 1006 at Fig. 3 and [0085]. Mueller also provides a definition of “lighting unit” or “lighting fixture” that is “an apparatus including one or more light sources of [the] same or different types.” [0064] (first three lines). Mueller makes various statements about use of multicolor LEDs and about form factors but provides no suggestion or reason why one would combine various of his laundry list of items with any other item on the laundry list. See e.g., Ex. 1006 at [0047] (laundry list of colors) and [0295] (laundry list of form factors).

#### **E. Ansems (Ex. 1007)**

Ansems is directed to an array of LEDs that are formed on a substrate to provide different colors. Ex. 1007 at Abstract. Ansems does not disclose any particular form factor for the LED luminaire. Ex. 1007 at Title and at Figs. 1-4. To the extent a shape may be disclosed, it appears to be a flat panel. Ex. 1007 at e.g., Fig. 1.

#### **F. Ivey (Simon) (Ex. 1008)**

Ivey discloses an LED-based light controller for an **emergency notification system** such as smoke or a fire or tornado. Ex. 1008 at Title and [0022]. The controller operates the LED lights in response to such an emergency. Ex. 1008 at Abstract. The LED lights may be in the form of a tube. Ex. 1008 at Figs. 1, 3 and 6.

Ivey has no teaching or suggestion of use for commercial image recording.

#### **IV. IPR STANDARDS**

##### **A. Institution of an IPR**

Under 35 U.S.C. § 314(a), Petitioner carries the burden of showing a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375-77 (Fed. Cir. 2016).

A Petition must explain “[h]ow the construed claim is unpatentable” and “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” 37 C.F.R. § 42.104(b)(4); *Google Inc. v. EveryMD.com LLC*, IPR2014-00347, Paper 9, at \*9 (PTAB May 22, 2014). “The Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge.” 37 C.F.R. § 42.104(b)(5).

##### **B. Petitions Based on Obviousness**

A petition based on obviousness, which all grounds raised by Petitioner are, must “meaningfully” address the first two *Graham* factors: (i) the scope and content of the prior art, and (ii) any differences between the claimed subject matter and the prior art. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966). The Petition must show that a skilled artisan would have been motivated to combine the

prior art references with a reasonable expectation of success. *Apotex Inc. v. Wyeth LLC*, IPR2014-00115, Paper 94, at \*11 (PTAB Apr. 20, 2015) (citations omitted). An articulated reason with a rational underpinning to combine specific teachings in the references in a particular manner to arrive at the claimed invention is required for a showing of obviousness. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007). When an expert declaration is relied on to support such reasoning, the “[l]ack of factual support for expert opinion going to factual determinations . . . may render the testimony of little probative value in a validity determination.” *Ashland Oil v. Delta Resins & Refractories*, 776 F.2d 281, 294 (Fed. Cir. 1985).

Petitioner must present credible evidence to support its assertion that one of ordinary skill in the art would have understood that there are a limited number of possibilities for meeting a known design need. See *Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1347 (Fed. Cir. 2009) (“[A]n invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art.”). “[A]n invention is not obvious to try where vague prior art does not guide an inventor toward a particular solution.” *Id.*

### **C. Claim Construction**

In an *inter partes* review filed on or after November 13, 2018, claim terms are construed based on their ordinary and customary meaning. 37 C.F.R. §42.100(b). Further, the Board should always construe claims to sustain their validity, if possible.

*Phillips v. AWH Corp.*, 415 F.3d 1303, 1329 (Fed. Cir. 2005). The specification is the “best source for understanding a technical term,” to be supplemented, “as needed, by the prosecution history.” *Id.*, at 1315.

For purposes of this paper, for all claim terms, Patent Owner requests that the Board adopt the ordinary and customary meaning of the claim terms as understood by one of ordinary skill in the art. Patent Owner reserves the right to propose more specific constructions of one or more claim terms, if that becomes an issue.

## **V. LEVEL OF ORDINARY SKILL IN THE ART**

Petitioner defines a person of ordinary skill in the art (“POSITA”) as an individual that has “a Bachelor of Science degree in electrical engineering, or a closely related field, along with at least two years of experience in the design of entertaining lighting systems, and the design and use of LED lights.” Petition at 16. Because the proposed level of ordinary skill does not affect the ultimate analysis, Patent Owner does not dispute the level of ordinary skill in the art in this paper. If, however, the level of skill of a POSITA becomes an issue and to the extent deemed necessary to resolve any dispute, Patent Owner reserves the right to propose a different level of ordinary skill in the art.

## **VI. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY THE PETITION UNDER 35 U.S.C. §325(d)**

Institution of *inter partes* review is always discretionary. 35 U.S.C. § 314(a); *Oil States Energy Services LLC v. Greene’s Energy Group, LLC*, 138 S. Ct. 1365,

1371 (2018) (“The Decision whether to institute *inter partes* review is committed to the Director’s discretion.”); 35 U.S.C. § 325(d); *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8, (P.T.A.B. Feb. 13, 2020)(precedential) (“Section 325(d) provides that the Director may elect not to institute a proceeding if the challenge to the patent is based on matters previously presented to the Office.”).

The Board should exercise its discretion under §325(d) to deny institution here. More specifically, the Board should properly deny institution in view of its precedential decision in both *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B. Dec. 15, 2017) (precedential) and *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (P.T.A.B. Feb. 13, 2020) (precedential), because the art in the Petition’s two grounds of unpatentability is the same as, substantially the same as, and cumulative of the art that was previously presented to the Office.

**A. The Art in Petitioner’s Ground 1, Kit, Ducharme and Katzir, Is the Same or Substantially the Same As Previously Presented**

Kit and Katzir were presented to the Office during prosecution by IDS of February 15, 2018. Ex. 1002, p. 216 (Kit, see Cite No. 1) and p. 217 (Katzir, see Cite No. 3); see also, Ex. 1001, p. 2, list of “References Cited” (Kit, bottom left column) and Katzir (middle right column). The IDS was marked by the examiner as considered. Ex. 1002, p. 216 (bottom).

The remaining reference, Ducharme, had an equivalent or substantial equivalent, Ducharme '261, presented to the Office in the same IDS. Ex. 2004 (Ducharme '261) and see Ex. 1002, p. 216 (near bottom, Cite No. 1, IDS marked as considered by examiner).

The disclosures of Ducharme and Ducharme '261 are the same or essentially the same as can be seen from even a cursory review of each. Exs. 1005 and 2004. For example, both references have the same figures except that Ducharme has three additional figures, 5c, 5d and 5e, but which are not relevant to the Petition. Ex. 1005 at Figs. 5c, 5d, 5e and at 13:22-23 and 40-42 (Figs. 5c, 5d and 5e are incandescent and halogen retrofits).

That the disclosures are the same or substantially the same is also clear as both Ducharme and Ducharme '261 come from continuations of the same U.S. patent application. Ducharme is a continuation of U.S. Patent Application Serial No. 11/322,891, which is a continuation of Serial No. 09/716,819. See, Ex. 1005, p. 1 (cover sheet, col. 1: “(63) Continuation of ... No. 11/322,891, ..., which is a continuation of ... No. 09/716,819....”). Ducharme '261 is also a continuation of the same Serial No. 09/716,819. Ex. 2004 at p. 1 (cover sheet, col. 2: “(63) Continuation of .... No. 09/716,819....”)

To the extent needed and/or helpful, attached hereto as Appendix 1 is a chart showing correspondence between the Petition's cited portions of Ducharme and the

disclosure of Ducharme ‘261.

Accordingly, with respect to Ground 1, all three references cited in the Petition or an equivalent reference were previously presented to the Office.

**B. The Art in Petitioner’s Ground 2, Mueller, Ivey and Ansems, Is the Same or Substantially the Same As Previously Presented**

For Ground 2, references that are substantially the same or substantially the same as Mueller, Ivey (Simon) and Ansems were presented to the Office during prosecution.

**1. Mueller ‘029 (Ex. 2005) has substantially similar disclosure as Mueller**

Mueller ‘029 was presented to the Office during prosecution by IDS on February 15, 2018. Ex. 1002, p. 216 (Cite No. 2); see also, Ex. 1001, p. 2, list of “References Cited” showing Mueller ‘029 at bottom of left column. The IDS was marked by the examiner as considered. Ex. 1002, p. 216, bottom.

A chart showing the substantial similarity of Mueller ‘029 compared with the relevant portions of Mueller cited in the Petition is attached hereto as Appendix 2.

**2. Simon ‘730 (Ex. 2006) has substantially similar disclosure as Ivey**

Simon ‘730 is substantially the same as the cited portions of Ivey<sup>1</sup>. For claim 1 (which is representative), the Petition cites Ivey, Fig. 6 and paragraphs [0006],

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<sup>1</sup> Petitioner calls Ex. 1008 “Ivey” but the first named inventor is **actually Simon**, as in Simon ‘730.

[0016] to [0018] and [0020] to [0021]. Petition, p. 55 (bottom) to p. 56, p. 59 (bottom paragraph), p. 60 (bottom) to p. 61, p. 62 (top half), p. 63 (top half) and p. 65 (bottom half). The chart below shows that Simon ‘730 corresponds to Ivey as follows:

| <b>Ivey (Simon) – Ex. 1008</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Simon ‘730 – Ex. 2006</b>                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Paragraphs [0006], [0016] to [0018] and Fig. 6 - housing and support structure with LEDs on it, with opposite ends, a top, an opaque bottom and LEDs emitting light out of a light diffusing top, the housing having a length of approximately 48” and diameter of 0.625”, 1.0” or 1.5” and having bi-pins for electrical and physical connection to a fixture</p> <p>Petition, p. 55 (bottom) to p. 56, p. 60 (bottom) to p. 61, and p. 62 (top half) and p. 63 (top half), p. 65 (bottom half)</p> | <p>Paragraphs [0005] to [0007], [0013] to [0015] and Figs. 1 and 3 – disclose a housing and support structure with LEDs on it, with opposite ends, a top, an opaque bottom and LEDs emitting light out of a light diffusing top, the housing having a length of approximately 48” and diameter of 0.625”, 1.0” or 1.5” and having bi-pins for electrical and physical connection to a fixture, as in Ivey</p> |
| <p>Paragraphs [0020]-[0021] – controller controlling amount of power to each LED</p>                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Paragraphs [0017] to [0018] - controller controlling amount of power to each LED as in Ivey</p>                                                                                                                                                                                                                                                                                                            |

|                          |  |
|--------------------------|--|
| Petition, p. 59 (bottom) |  |
|--------------------------|--|

Exs. 1008 and 2006.

The remaining citations to Ivey in the Petition are for the same or portions of the above-listed paragraphs and figures of Ivey. Petition, pp. 65 (paragraph just below middle of page), p. 70 (bottom) to p. 71 (middle) and p. 76 (from near the top) to p. 77 to p. 78 (all). Note that the discussion on pages 77-78 of the Petition concerning dependent claims 35 and 36 cites to Ivey for LEDs evenly dispersed along the length of the lighting device, again relying on the same portions of Ivey, Fig. 6 and paragraphs [0016] to [0018], [0020] to [0021] and [0006], which all have corresponding disclosure in Simon ‘730. Figs. 1 and 3 of Simon ‘730 also show evenly dispersed LEDs as in Ivey. Ex. 2006 at Figs. 1, 3.

To the extent needed and/or helpful, attached hereto as Appendix 3 is a chart showing in more detail correspondence between the Petition’s cited portions of Ivey (Simon) and the disclosure of Simon ‘730.

### **3. Kit (Ex. 1004) includes substantially similar disclosure as the cited portions of Ansems**

Kit was presented to the Office during prosecution as explained above. Kit has teachings that are the same or substantially the same as the portions of Ansems cited in the Petition.

First, Ansems is cited for teaching “three sets [of LEDs that] are separately connected to a LED driver unit 6 which independently can control the voltage and/or

current through the three separate sets through the individual connectors....”  
Petition, p. 59 (paragraph starting at middle of page). Kit teaches independent control of the array of LEDs as asserted by and therefore admitted by Petitioner. See Kit’s teachings at Ex. 1004 at 23:31-33 and 24:3-41, especially 24:27-31. See also, for the admissions, Petition, p. 29 to top of p. 30, citing to Kit for teaching a controller that can provide varying amounts of power to the array of LEDs to dim the LEDs and can change the color of the lamp color output and circuit modules to “provide current driver power to operate the LED arrays,” and for the controller driving an array of LEDs. Petition, p. 29.

Second, Ansems is cited in the Petition for teaching that the LEDs are in a matrix. Petition, p. 53 (bottom paragraph). Kit (presented to the Office as noted above) teaches an LED array. See, e.g., Fig. 5 (“LED ARRAY CIRCUITRY 72” in a big box labeled 34 in Fig. 5) and see, e.g., Figs. 2-3 showing the array of LEDs, and 44:45-55 referring to “LED array circuit board 34” and 45:36-38 referring to “LED array 40” and Fig. 4.

Third, Ansems is cited for a repeating matrix with respect to the ‘224 Patent’s dependent claim 12. Petition, pp. 66-67. Fig. 23 of Kit discloses a repeating matrix 294 of LEDs 292. Ex. 1004 at 62:50-63.

Accordingly, the same and/or substantially the same art as cited in the Petition was already presented to the Office during prosecution.

Despite the same/equivalent and cumulative art as that of record in ‘224 Patent prosecution, Petitioner has not explained how the Office erred beyond conclusory assertions that the Office did not consider the exact combination of art presented in the Petition and/or why the Office’s reconsideration of prosecution where the examiner was aware of such art would be an efficient and proper use of the Board’s resources.

### **C. The Board Should Deny the Petition Under § 325(d)**

Pursuant to 35 U.S.C. § 325(d), the Board has discretion to deny a petition based on whether the same or substantially the same prior art or arguments were previously presented to the Patent Office. In exercising this discretion, the Board considers certain non-exclusive factors. *See Becton, Dickinson*, IPR2017-01586, Paper 8 at 17–18 (precedential).

These clear and non-exclusive factors include: (1) the similarities and material differences between the asserted art and the prior art involved during examination; (2) the cumulative nature of the asserted art and the prior art evaluated during examination; (3) the extent to which the asserted art was evaluated during examination; (4) the extent of the overlap between the arguments made during examination and the manner in which a petitioner relies on the prior art or a patent owner distinguishes the prior art; (5) whether a petitioner has pointed out sufficiently how the Examiner erred in evaluating the asserted prior art; and (6) the extent to

which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments. *Id.* Here, these factors also heavily favor denial of institution of this Petition.

In *Advanced Bionics*, the Board emphasized that for these *Becton, Dickinson* factors it “uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, IPR2019-01469, Paper 6 at 8. “If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.* at 8-9.

The first part of §325(d)’s framework considers “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” *Id.* at 8. “Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent.” *Id.* at 7-8.

Under the second part of §325(d)’s framework, “if either condition of [the]

first part of the framework is satisfied, [the Board determines] whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Id.* at 8. The Board provided examples of material errors, which include “misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims” and “an error of law, such as misconstruing a claim term, where the construction impacts patentability of the challenged claims.” *Id.* at 8, n.9. The Board further explained that the petitioner carries the burden of demonstrating material error, stating that “[i]f a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.* at 8-9.

In this instance, Petitioner relies on references that are the same or substantially the same as art that was already presented to the Patent Office yet fails to make any substantive attempt to demonstrate that the Office erred in any way, let alone in any material way.

In the prior sections, i.e., VI.A. and VI.B. and Appendices 1, 2 and 3, Patent Owner has shown that all of the references cited by Petitioner were of record and/or had a substantial equivalent of record. The burden is thus on the Petitioner to show error. Petitioner made only conclusory allegations that the Examiner did not consider the prior art combination or invalidity positions in the Petition. Petition, p. 79. But, these

allegations do not demonstrate that the Office erred in a manner material to the patentability of challenged claims, “misapprehend[ed] or overlook[ed] specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims,” or committed “an error of law, such as misconstruing a claim term, where the construction impacts patentability of the challenged claims.” *see also Advanced Bionics*, IPR2019-01469, Paper 6 at 8.

Moreover, Petitioner’s statements that the examiner did not rely on Kit or Katzir also fail to make a showing of error. Petition, p. 79.

In fact, the statements in the Petition concerning what the Office considered have errors. The Petition asserts that “Ducharme itself was not cited during prosecution,” and “[n]or did the Examiner consider, or rely on, Mueller, Ansems, or Ivey, or any references substantially similar.” Petition, p. 79 (near bottom). However, these assertions are not correct. As Patent Owner has shown in the above sections (VI.A., VI.B.) and in the Appendices, equivalents of Ducharme, Mueller and Ivey (Simon) were of record and Kit, which was of record, teaches substantially the same thing as the cited portions of Ansems.

Last, Petitioner asserts that the Examiner did not have its expert declaration of record. But that is not the test. One can always submit an expert declaration and argue that such declaration was not of record. Further, the Holmes declaration is

mainly conclusory, and/or is gratuitous to the Petition.<sup>2</sup>

The Petition never addresses the similarity of the equivalent and substantially similar prior art that was already presented to the Office. Nor does the Petition make any attempt to explain how the Office erred in a manner material to the patentability of challenged claims.

Because the Petition fails to meet its burden to show error, the Board should exercise its discretion and deny institution. See, *Advanced Bionics*, IPR2019-01469, Paper 6 at 9.

## **VII. THE BOARD SHOULD DENY INSTITUTION BECAUSE PETITIONER’S GROUNDS OF INVALIDITY FAIL TO ESTABLISH A REASONABLE LIKELIHOOD OF SUCCESS**

### **A. In Ground 1, Petitioner Failed to Establish that the Challenged Claims are Unpatentable as Obvious Over Kit in view of Ducharme and Katzir**

Petitioner’s proposed Ground 1 is shown in the chart below:

| <b>Ground</b> | <b>’224 Patent Claims</b>                  | <b>Type</b> | <b>Reference</b>                   |
|---------------|--------------------------------------------|-------------|------------------------------------|
| 1             | 1, 3, 4, 7-13, 23, 25, 26, 28-39 and 41-45 | § 103       | Kit in view of Ducharme and Katzir |

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<sup>2</sup> Declarant Holmes was Intellectual Property counsel for the Vitec Group, **now known as Videndum, which is an interested party**. See, paragraph 5 of Ex. 1003 which mentions the Vitec Group but does not mention the Vitec Group’s current name Videndum plc; see Petition, p. 4 (bottom half) and Ex. 2007 (name change).

## **1. There Is No Likelihood of Success on Claim 1**

Petitioner proposes a 103 rejection of the challenged claims based on Kit in view of Ducharme and Katzir. Kit alone and/or in view of Ducharme and Katzir would not achieve the invention as recited in claim 1 because they fail to disclose or teach the following elements alone and/or in combination of “[a]n LED lighting device configured for providing light suitable for a commercial image recording” (claim 1[pre]):

(1) Claim element 1[c] which provides, in pertinent part:

an array of LED emitting devices...configured to emit five different colors...: a first set of LED emitting elements configured to emit light of a first color; a second set of LED emitting elements configured to emit light of a second color; a third set of LED emitting elements configured to emit light of a third color; a fourth set of LED emitting elements configured to emit light of a fourth color; and a fifth set of LED emitting elements configured to emit a broad-spectrum white light within a predetermined Kelvin temperature range.

(2) Claim element 1[f]: “wherein the housing has a linear form factor substantially that of a fluorescent tube having an axial direction and having a diameter of no greater than about 41 mm...”

In claim 1, it is clear that there are five different color LEDs in the 41mm diameter or less lighting tube device, and one of the colors is broad-spectrum white light, which is one key part of what makes the device suitable for commercial image recording.

**a. Kit lacks any teaching of five different color LEDs in a tubular lighting device, where one of the colors is broad-spectrum white light, and Ducharme and Katzir cannot make up for this shortcoming.**

Kit lacks any teaching of five different color LEDs in a tubular lighting device, where one of the colors is broad-spectrum white light.

Petitioner argues that Kit discloses use of five different colors of LEDs wherein this includes white LEDs. But Petitioner does not point to any disclosure of an embodiment with five different LED colors wherein one LED is broad-spectrum white.

While Kit provides an embodiment of red, green and blue (“RGB”) LEDs, Kit does not teach using white LEDs with this color combination. In fact, Kit teaches away from using white with this combination in the very passage cited by Petitioner:

**Another circuit module** can be a color effects module for use with color LEDs **instead of white LEDs** used in the LED lamps.

Ex. 1004 at 24:27-29 (emphasis added); Petition, p. 28 (seventh line from bottom). It is evident that Kit is teaching this embodiment instead of an alternate embodiment

where the LEDs are white. Ex. 1004 at 21:20-29 (discussing options for white LEDs). The Petition also cites to sections of Kit discussing white LEDs. See, Petition, p. 28 (seventh line from bottom) and Ex. 1004 at 22:9-35. But this portion of Kit is referring to use of some types of white LEDs in the white LED embodiment of Kit: “In particular, the Luxeon brand of white SMD ... LEDs can also be used.... Lumileds Luxeon ... offers a 17 lumens 1-Watt white LED....” Ex. 1004: 22:9-27.

The Petition then points to another portion of Kit for teaching white LEDs. See, Petition, p. 28 (third line from bottom). This portion of Kit is simply a laundry list of colors: “LEDs are now available in colors like Red, Blue, Green, Yellow, Amber, Orange and many other colors including White.” Ex. 1004: 22:9-35; see Petition, p. 28, section entitled “Claim 1[c].” Ex. 1004 at 50-63. This laundry list provides no guidance to a POSITA that might lead one to create a tubular LED luminaire with five different colors of LEDs wherein one set is broad-spectrum white light suitable for commercial image recording, particularly since Kit is teaching away from the combination of white and colored LEDs.

The Petition asserts that “the fifth set of LEDs can emit broad-spectrum white light” and cites to yet another portion of the specification discussing color temperatures of white light. Ex. 1004 at 3:20-38; see Petition, p. 28 (third line from bottom). Here, the use of “can” in Petitioner’s brief is a hindsight driven, obvious-to-try argument. See, Petition, p. 28 (fifth line from bottom).

Moreover, because RGB can and is used to produce a white output, the cited references teach no reason to modify Kit to add a broad-spectrum white LED.

Because Ducharme and Katzir only teach white LEDs and/or do not change the express teaching of Kit that colored LEDs are used instead of white LEDs, they cannot make up for the shortcomings of Kit.

**b. Since Kit is not disclosing use in commercial image recording, combining Kit with an embodiment of Ducharme for commercial image recording does not make sense.**

In addition to any combination of Kit, Ducharme and Katzir failing to achieve the claimed combination as explained above, it would not have been obvious to modify Kit by Ducharme. There is no mention of commercial image recording in Kit. Rather, Kit's invention is for "general lighting applications":

Unfortunately, the prior art LED lamp designs used thus far still do not provide sufficiently bright and uniform illumination for **general lighting** applications, nor can they be used strictly as direct and simple LED retrofit lamps for existing fluorescent lighting fixtures and ballast configurations.

Ex. 1004 at 13:39-43; and see also 16:4-9 (referring to "general lighting") (emphasis added).

The preamble of Claim 1 (1[pre]) recites "[a]n LED lighting device configured for providing light suitable for a commercial image recording." The Petition does not

cite to any portion of Kit that refers to use in commercial image recording. See, Petition, pp. 23-25.

Kit's purpose is to create a tubular LED lamp that replaces fluorescent bulbs and is dimmable to save energy or can be turned off or on depending upon a photosensor input and/or an occupancy sensor. Ex. 2003 at Abstract. This type of luminaire would not be useful in image recording because the light level can change at the wrong time. It is meant for use in the home, office, or the like.

Further, Kit does not teach broad-spectrum white light in combination with any multicolored embodiment. Broad-spectrum white light is an important part of what makes this luminaire suitable for use when in white mode in the image recording industry. Because use of red, green and blue would provide colors in the spectrum, use of broad-spectrum white LEDs is not obvious when used with colored LEDs.

Ducharme is entitled "Conventionally-Shaped Light Bulbs Employing **White** LEDS." Ex. 1005, Title (emphasis added). Ducharme teaches "LED-based light bulbs having one or more **white** LEDs, for replacing/retrofitting conventional light bulbs." Ex. 1005 at Abstract (lines 1-2) (emphasis added). The bulbs may be Edison-type (incandescent) (Fig. 5c), fluorescent (Fig. 5a) or otherwise. Ex. 1005 (Figs. 5a, 5c).

Kit's LED lamp's primary purpose is energy savings. Ex. 1004 at 6:41-57 and 7:5-8 (discussing "present energy crisis" and "need for more energy efficient lamps"). To that end, Kit has an extensive discussion of efficiency, daylight

harvesting and occupancy sensors. Ex. 1004, e.g., at 7:9 to 8:55.

This goal of efficiency is well summed up in Kit: “To reduce electrical cost and to incur reliability, LED lamps have been developed to replace the conventional incandescent lamps typically used in existing general lighting fixtures. LED lamps consume less energy than conventional lamps and give much longer lamp life.” Ex. 1004 at 13:34-38 and see 14:63-65; 15:6-8.

Given the general use lighting, energy-saving purposes of Kit, there is no reason to modify it by Ducharme.

**c. Even If It Would Have Been Obvious to Modify Kit by Ducharme and/or Katzir, the Result Would Only Be a Modified White Light Embodiment.**

Any combination of Ducharme and/or Katzir with Kit, even if it were obvious, would simply result in the white LED embodiment of Kit being modified in accordance with the white light of Ducharme and/or of Katzir. It would not result in any modification of Kit’s colored LED embodiment since that embodiment has no white light. There is no motivation in Kit or Ducharme or otherwise to put Ducharme’s white LEDs into Kit’s colored LED embodiment. This is particularly true since Kit’s colored embodiment teaches away from using white LEDs. Ex. 1004 at 24:27-29 (“**Another circuit module** can be a color effects module for use with color LEDs **instead of white LEDs** used in the LED lamps.”) (emphasis added).

Katzir also only teaches white light embodiments for a tubular LED. Ex. 1010.

And, Katzir has no teaching of use for commercial image recording. Ex. 1010 at [0050] (second to last sentence); [0051] (first sentence). Katzir teaches that blending two white light sources will somehow reduce green tinted output. Ex. 1010 at [0051]. Moreover, nothing in Katzir suggests use for commercial image recording or use of broad-spectrum white LEDs. Accordingly, nothing in Katzir's disclosure would change anything about Kit's LED luminaire (whether modified by Ducharme or not) having only white or having multicolored LEDs. The result of any combination of the references would not be a luminaire with five different colored sets of LEDs, one of which is broad-spectrum white light.

The Petition fails to allege any reason to add white LEDs to Kit's color LED embodiment, and particularly since Kit sets forth that the RGB embodiment is instead of white light. The Petition simply uses hindsight to cherry pick from multiple embodiments without any reason to do so.

## **2. Independent claims 13, 23 and 35**

Independent claims 13, 23 and 35 incorporate the same or substantially similar elements as in Claim 1, and therefore it is submitted that Petitioner has not shown a likelihood of success for the same or substantially the same reasons as for claim 1 discussed above.

### **3. There Is No Likelihood of Success of Any Invalidity due to Kit in View of Ducharme and Katzir for Dependent Claims 3-4 and 10-11**

#### **a. Claim 3 (255 Different Colors)**

Claim 3 depends on claim 1 and recites that the LED lighting device's "LED driver is adapted for selectively driving each of the first set, second set, third set, fourth set and fifth set of LED emitting elements in **increments of about 1/255** to selectively produce at least 255 different colors from the lighting device." Ex. 1001 ('224 Patent) at claim 3 (emphasis added). Petitioner cites the same group of prior art in arguing that claim 3 would have been obvious as proposed against claim 1. However, claim 3 would not have been obvious.

The purpose of incrementing in 1/255 to produce 255 different colors is to match the color wheel used in the entertainment industry. Ex. 1001 at e.g., 23:1-17. There is no disclosure in Kit that would direct a POSITA to a color wheel. The Petition cites to Kit for RGBAW LEDs, but as explained above in discussing claim 1, Kit does not disclose or teach an RGBAW embodiment. And, even assuming for purposes of argument that an RGBAW embodiment using broad-spectrum white light would have been obvious, there is no teaching of incrementing in 1/255 to produce 255 different colors to match the 255 number of colors on the color wheel.

In the Petition, it is asserted that Kit's LED driver is adapted to selectively drive five sets of LEDs in increments of 1/255, but nowhere does Kit disclose that. See, Petition, p. 36 (sixth and fifth lines from the bottom). Rather than cite to Kit for

this proposition, the Petition cites to the Holmes declaration. Petition, p. 36 (fourth line from the bottom); Ex. 1003 at ¶s 149-150. But in these paragraphs, which are conclusory, there is no citation to Kit. Again, the word “can” is used in a manner of an obviousness to try theory, which is not sufficient to support an obviousness claim. Ex. 1003 at ¶150 (second line).

While the Petition further cites to Kit teaching a dimming circuit that may be controlled by DMX512, that control is for dimming the white light embodiment. Petition, p. 37 (first full paragraph); Ex. 1004 at 24:3-42. There is no disclosure of how that control would work with a color embodiment other than a broad statement about additional channels being required. Ex. 1004 at 34-37.

**b. Claim 4 (255 Colors to Match Color Wheel)**

Claim 4 depends on claim 3 and so would not have been obvious from the proposed combination for the same reasons as set forth with respect to claim 3 above. Moreover, claim 4 incorporates use of a computer console or lighting control board and expressly refers to the “LED driver ...adapted for selectively driving each of the first set, second set, third set, fourth set and fifth set of LED emitting elements ... to selectively produce the at least 255 different colors of [a] **color wheel**.” Ex. 1001, claim 4 (emphasis added). There is no disclosure in Mueller or any of the other cited references that would teach operating the driver this way.

**c. Claim 10 (RGBAW)**

Claim 10 depends on claim 1 and adds that in addition to the broad-spectrum

white light set of LEDs, the other four sets are “red, green, blue and amber.” Nothing in the cited references refers to this combination of colored LEDs. The Petition argues that Kit discloses all of these colors and more. While Kit does disclose a laundry list of colors, nothing in Kit suggests this combination, including broad-spectrum white light. The Petition also cites to the Holmes Declaration, but that declaration merely copies a paragraph from Kit and makes conclusory statements. See, Petition, pp. 38-39; and see Ex. 1003 at ¶s 149-150. And again, Kit does not teach, and specifically separates, any embodiments with colored LEDs from the embodiment using white LEDs.

**d. Claim 11 (Daylight and Tungsten)**

Claim 11 depends on claim 1 and adds that “among the colors the driver is configured to selectively produce are white light in each of **daylight and tungsten temperature ranges**.” Ex. 1001, claim 11. These two ranges are very commonly used in the entertainment industry. The combination of these two ranges in the lighting device of claim 1 would not have been obvious.

While Kit may disclose color temperature ranges of 3200K, 4100K or 5500K, there is no teaching, suggestion or motivation to use daylight and tungsten temperature ranges of white light combined with LEDs that are producing colors and certainly not in the claimed combination with broad-spectrum white light, as well as multiple colors of LEDs, and not in a tubular format suitable for commercial image

recording. Kit’s discussion of available white LEDs in these ranges is in relation to his white LED embodiment. See, Petition p. 38 (middle two paragraphs); Ex. 1004 at 3:26-38 and 22:9-14. Moreover, Kit does not teach using both daylight and tungsten. The Holmes Declaration discusses some background regarding daylight and tungsten light but does not overcome the shortcomings of Kit’s separation of the white LED and color LED embodiments. Moreover, there is no reasonable motivation to add to different types of white light into a colored LED luminaire of Kit.

**B. In Ground 2, Petitioner Failed to Establish that the Challenged Claims are Unpatentable as Obvious Over Mueller in view of Ivey (Simon) and Ansems**

Petitioner’s proposed Ground 1 is shown in the chart below:

| Ground | '224 Patent Claims                         | Type  | Reference                                  |
|--------|--------------------------------------------|-------|--------------------------------------------|
| 2      | 1, 3, 4, 7-13, 23, 25, 26, 28-39 and 41-45 | § 103 | Mueller in view of Ivey (Simon) and Ansems |

Petitioner proposes a 103 rejection of the challenged claims based on Mueller in view of Ivey (Simon) and Ansems. Mueller alone and/or in view of Ivey (Simon) and Ansems would not achieve the invention as recited in claim 1 because it would lack the following elements alone and/or in combination in “[a]n LED lighting device configured for providing light suitable for a commercial image recording” (Ex. 1001 at Claim 1 (1[pre])):

(1) Claim element 1[c] which provides, in pertinent

part:

an array of LED emitting devices...configured to emit five different colors...: a first set of LED emitting elements configured to emit light of a first color; a second set of LED emitting elements configured to emit light of a second color; a third set of LED emitting elements configured to emit light of a third color; a fourth set of LED emitting elements configured to emit light of a fourth color; and a fifth set of LED emitting elements configured to emit a broad-spectrum white light within a predetermined Kelvin temperature range.

(2) Claim element 1[e] recites “an LED driver ... configured to selectively provide electrical power to the array of LED emitting devices.”

(3)\_ Claim element 1[f] provides: “wherein the housing has a linear form factor substantially that of a fluorescent tube having an axial direction and having a diameter of no greater than about 41 mm....”

Ex. 1001, claim 1, 1[pre], 1[c], 1[e] and 1[f].

Thus, it is clear that there are five different color LEDs in the lighting device, and one of the colors is broad-spectrum white light, which is part of what makes the 41 mm diameter tubular lighting device suitable for commercial image recording, as

recited in the preamble. And, the five different color LEDs are driven individually by an LED driver.

Mueller does not teach five different color LEDs in a tubular lighting device, where one of the colors is broad-spectrum white light.

Petitioner argues that Mueller discloses use of five different colors of LEDs wherein this includes white LEDs. Petitioner points to a laundry list of LED colors. Petition, p. 57 (bottom) to p. 58 (top); Ex. 1006 at [0194] and [0046]. But Mueller only states that red, green and blue can be mixed with other colors such as amber, white, UV, orange, IR or other colors of LEDs. Ex. 1006 at [0046] and [0194]. Merely citing a laundry list of possibilities does not teach the combination of those possibilities. See *Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1347 (Fed. Cir. 2009) (“[A]n invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art.” And, “an invention is not obvious to try where vague prior art does not guide an inventor toward a particular solution.”)

Even if, for purposes of argument, Mueller teaches use of RGB with amber LEDs, or RGB with white, or even RGB with amber and white LEDs, Mueller lacks any teaching of using broad-spectrum white LEDs in such a combination. Given Mueller’s laundry list of items, Mueller lacks any specific suggestion to add broad-spectrum white light to the mixture. There are a myriad of potential combinations,

which are not reasonably narrowed.

**Claim Elements 1[e] and 1[f]:** Mueller also does not disclose or teach “an LED driver ... configured to selectively provide electrical power to the array of LED emitting devices.” Mueller lacks any details of how a lighting unit is constructed. See, Petition, p. 60 (top); Ex. 1006 at [0064], and e.g., Fig. 3. While Mueller states that “a given lighting unit optionally may be associated with (e.g., include, be coupled to and/or packaged together with) various other components (e.g., control circuitry),” there is nothing disclosing that the lighting source has all components onboard a T12 or T8 tubular format. As recited in Claim element 1[f], the T12 format is narrow (41 mm).

Even if it is accepted for purposes of argument that one might try to construct a tubular LED luminaire with five different colors of LEDs onboard, designing such a luminaire with an onboard LED driver in the form factor of T12 or T8 would not have been obvious due to limited space. See, Ex. 2003 at Abstract (LED lighting device) and at [0012] (“fluorescent lighting systems are generally tube-shaped, which can limit the lighting configuration or mounting options.”) See, also Exs. 2003 and 2002 (first page) (regarding Mac Tech’s teaching away from multiple LED colors on a tubular luminaire).

Moreover, the one linear tube shown in Mueller has no details concerning its construction. See, Ex. 1006 at Fig. 3 (element 302). All that is shown on the linear

element of Fig. 3 are LEDs. Ex. 1006 at Fig. 3; see also, Fig. 1 (light sources 104A to 104D, i.e., LEDs as disclosed at [0155]).

Making such a luminaire suitable for image recording, which would include broad-spectrum white light, would also not have been obvious, given that the presence of colored LEDs would appear to obviate the need for broad-spectrum white light.

To make up for Kit's lack of an onboard LED driver, the Petition cites to Ansems. Petition, p. 60 (top); Ex. 1007 at 4:8-24. Ansems discloses a "Single Chip LED As Compact Color Variable Light Source." Ex. 1007 at Title. Ansems lacks any disclosure about where the LED driver is located. Ex. 1007 at 4:8-24. Nor does Ansems have any disclosure of a luminaire in a tube shape such as a T12 or T8 or whether his alleged matrix would even fit on a T12 or T8 tubular luminaire. Accordingly, there would be insufficient direction to a POSITA to achieve such a luminaire. There would be no suggestion of such a modification to Mueller and no reasonable expectation of the success of any invalidity argument based on such a modification.

**1. There Is No Likelihood of Success of Mueller in View of Ivey and Ansems on Dependent Claims 3-4 and 10-11**

**a. Claim 3 (255 Different Colors)**

Claim 3 depends on claim 1 and recites that the LED lighting device's "LED driver is adapted for selectively driving each of the first set, second set, third set,

fourth set and fifth set of LED emitting elements in **increments of about 1/255** to selectively produce at least 255 different colors from the lighting device.” Ex. 1001 at claim 3 (emphasis added). The Petition cites the same group of prior art in arguing that claim 3 would have been obvious as proposed against claim 1. However, claim 3 would not have been obvious.

As noted above, the purpose of incrementing in 1/255 to obtain 255 different colors is to match the color wheel used in the entertainment industry. Ex. 1 at e.g., 23:1-17. There is no disclosure in Mueller or any of the other cited references that would yield this number or that would direct a POSITA to a color wheel. The Petition cites to Mueller for RGBAW LEDs, but as explained above in discussing claim 1, Mueller,s laundry list does not disclose or teach the combined RGBAW embodiment with broad-spectrum white light. Even assuming for purposes of argument that an RGBAW embodiment using broad-spectrum white light would have been obvious, there is no teaching of production of incrementing in 1/255 to match the 255 number of colors on the color wheel.

In the Petition, it is asserted that Mueller’s LED driver is adapted to selectively drive five sets of LEDs in increments of 1/255, but nowhere does Mueller disclose that. See, Petition, p. 63 (bottom). Rather than cite to Mueller for this proposition, the Petition cites to the Holmes Declaration. Petition, p. 63, (last line); Ex. 1003 at ¶¶ 419-420. However, these paragraphs in the Holmes Declaration are conclusory. The

only citation to Mueller in Holmes is paragraphs [0183], [0158] and [0043]. Holmes Declaration, ¶ 420 (citing to Ex. 1006 at [0183], [0158] and [0043]). Mueller paragraph [0043] merely has a laundry list of possible LED colors. Ex. 1006 at [0043]. Mueller paragraph [0158] only refers to use of PWM channels and generating millions of colors, but nowhere is there mention of an incrementation of 1/255 to match the color wheel. Ex. 1006 at [0158]. Mueller paragraph [0183] only mentions DMX control, and again nowhere is there mention of an incrementation of 1/255 to match the color wheel. Ex. 1006 at [0183].

Further, the Holmes Declaration provides nothing more than asserting a hypothetical capability, because the words “can” and “could” are used in support. Ex. 1003 at ¶420 (p. 162, end of third line “can” and beginning of 7<sup>th</sup> line “could”).

There is no disclosure or suggestion of the claimed 1/255 incrementation in Mueller or any of the cited references.

#### **b. Claim 4 (255 Colors to Match Color Wheel)**

Claim 4 depends on claim 3 and so would not have been obvious from the proposed combination for the same reasons as set forth with respect to claim 3 above. Moreover, claim 4 incorporates use of a computer console or lighting control board and expressly refers to the “LED driver ...adapted for selectively driving each of the first set, second set, third set, fourth set and fifth set of LED emitting elements ... to selectively produce the at least 255 different colors of [a] **color wheel**.” Ex. 1001,

claim 4 (emphasis added). There is no disclosure in Mueller or any of the other cited references that would teach operating the driver this way.

**c. Claim 10 (RGBAW)**

This claim depends on claim 1 and adds that in addition to the broad-spectrum white light set of LEDs, the other four sets are “red, green, blue and amber.” The cited references do not refer to this combination of colored LEDs and white LED. The Petition argues that Mueller discloses all of these colors and more. Petition, p. 65 (bottom) to p. 66 (top) and Ex. 1006 at [0043]-[0051] and [0194]. Mueller’s laundry list of colors and laundry list of form factors does not guide a POSITA to this RGBAW combination including broad-spectrum white light and in a T12 fluorescent form factor. See *Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1347 (Fed. Cir. 2009) (“[A]n invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art.” And, “an invention is not obvious to try where vague prior art does not guide an inventor toward a particular solution.”)

**d. Claim 11 (Daylight and Tungsten)**

This claim depends on claim 1 and adds that “among the colors the driver is configured to selectively produce are white light in each of **daylight and tungsten temperature ranges**” in the claimed combination with broad-spectrum white light as well as multiple colors of LEDs and a tubular format, suitable for commercial image recording. Ex. 1001, claim 11 (emphasis added). These two ranges are very

commonly used in the entertainment industry. The combination of these two ranges in the lighting device of claim 1, in addition to colors, would not have been obvious.

While Mueller may disclose a color temperature range of 700K to 10,000K, there is no teaching, suggestion or motivation to use the specific daylight and tungsten temperature ranges of broad-spectrum white light in a luminaire combined with LEDs that are producing colors as recited in claim 11/1. The Petition cites to three paragraphs of Mueller. See, Petition p. 66 (middle) and Ex. 1006 at [0194] and [0062]-[0063]. Mueller, in paragraph [0194], has no mention of any specific color temperature ranges of white light. Ex. 1006 at [0194]. Mueller, at paragraph [0062], only refers to the broad range of 700K to 10,000K, and paragraph [0063] is only discussing temperatures that provide various color tints. Ex. 1006 at [0062]-[0063]. There is no guidance to putting the claimed color temperature ranges together with the other claimed elements. There is no guidance to a POSITA to pick and choose the claimed elements in combination without the use of hindsight.

The Holmes Declaration adds nothing to Mueller as Holmes merely cites to the same paragraphs of Mueller as cited in the Petition and makes conclusory statements about them. Ex. 1003 at ¶s 437-438.

Moreover, there is no reasonable motivation to add to different types of white light into a colored LED luminaire of Mueller.

## **2. There Is No Likelihood of Success on the Remaining Challenged Claims on Ground 2**

### **a. Independent claims 13, 23 and 35**

Independent claims 13, 23 and 35 incorporate the same or substantially similar elements as in Claim 1, and therefore it is submitted that Petitioner has not shown a likelihood of success for the same or substantially the same reasons as for claim 1 discussed above.

### **b. Dependent claims 25 and 37 (255 Different Colors)**

Dependent claims 25 and 37 depend on independent claims 23 and 35, respectively. The subject matter of claims 25 and 37 are substantially similar to dependent claim 3 and therefore the arguments with respect to claim 3 apply equally to these claims.

### **c. Dependent claims 26, 38, 39 (255 Colors to Match Color Wheel)**

Dependent claims 26 and 38 depend on dependent claims 25 and 37. Dependent claim 39 depends on dependent claim 36. The subject matter of claims 26 and 38 is substantially similar to dependent claim 4. The subject matter of claim 39 is similar to the subject matter recited in claim 4. Therefore the arguments with respect to claim 4 apply to these claims as well.

### **d. Dependent claim 32 (RGBAW)**

Dependent claim 32 depends on claim 23. The subject matter of claim 32 is substantially similar to dependent claim 10 and therefore the arguments with respect

to claim 10 applies equally to this claim.

**e. Dependent claims 33 and 44 (Daylight and Tungsten)**

Dependent claims 33 and 44 depend on independent claims 23 and 35, respectively. The subject matter of claims 33 and 44 is substantially similar to dependent claim 11 and therefore the arguments with respect to claim 11 apply equally to these claims.

**VIII. CONCLUSION**

For the reasons above:

The Board should exercise its discretion to deny institution under 35 U.S.C. § 325(d) “because, the same or substantially the same prior art or arguments previously were presented to the Office” and Petitioner has failed to make the requisite showing of error, instead incorrectly asserting that certain references had no equivalent or substantially similar art that was previously presented.

And, the Board shall also deny institution because the Petition fails to show the requisite chance of success.

Patent Owner respectfully requests the Board to deny institution of IPR2023-00611.

Dated: July 11, 2023

Respectfully submitted,

/David L. Hoffman/  
David L. Hoffman

## APPENDIX 1 – DUCHARME V. DUCHARME ‘261

| Ducharme – Ex. 1005                                                                                                                                                                                                                 | Ducharme ‘261 – Ex. 2004                                                                                                                                                                                                                                                            |
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| <p>Abstract: “LED-based light bulbs having one or more white LEDs, for replacing/retrofitting conventional light bulbs.”</p> <p>(see Petition, pp. 13-14).</p>                                                                      | <p>Abstract, Fig. 5a and [0171] - Ducharme ‘261 is also a lighting device with LED bulbs.</p>                                                                                                                                                                                       |
| <p>Fig. 28 and 28:53-60 and 19:14-24 - re Ducharme as a high-quality LED light source used in image recording</p> <p>(see Petition, pp. 13-14).</p>                                                                                 | <p>Fig. 28 – same as Fig. 28 of Ducharme [0170] and [0114] (about middle of paragraph) are the same as Ducharme at 28:53-60 and 19:14-24.</p>                                                                                                                                       |
| <p>Figs. 5a–5b, 28, 29</p> <p>12:49–67, 18:51–64, 19:14-24 and 28:53–57 re a linear tube-like form factor for image recording, for replacing a fluorescent tube in an existing fixture and asserting proper color temperatures.</p> | <p>Figs. 5a, 5b, 28-29 – same as Ducharme [0091] - same as 12:49-67 of Ducharme [0114, second half] - same as 18:51-64 of Ducharme;</p> <p>[0116] - same as 19:14-24 of Ducharme; and</p> <p>[0170] - same as 28:53-57 of Ducharme [0011] (last sentence), [0153] to [0154] and</p> |

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| (see Petition, pp. 20-21)                                                                                                                                                                  | [0126] – referring to color temperature ranges, warm white and cool white color temperatures and high CRI.                                                                                                                          |
| 18:33-54 re use in image recording<br>(see Petition, pp. 24-25)                                                                                                                            | [0114] - same as Ducharme                                                                                                                                                                                                           |
| Figs. 29 and 10a, 10b<br>29:44-45, 30:35-31:4, and 17:59-18:33 re Ducharme’s controller for color temperatures of LEDs<br>(see Petition, p. 30 and p. 35 citing same portions of Ducharme) | Figs. 29, 10a, 10b – same as Ducharme<br>[0171] – same as Ducharme 29:44-45<br>(including the whole paragraph from 29:16-55);<br>[0176] to [0177] – same as Ducharme 30:35-31:4;<br>[0111] to [0113] – same as Ducharme 17:59-18:33 |
| 12:5-16 and 27:19-26 re diffusion cover<br><br>Petition, p. 36                                                                                                                             | [0088] – same as Ducharme 12:5-16<br>[0167] – same as Ducharme 27:19-26                                                                                                                                                             |

## APPENDIX 2 – MUELLER V. MUELLER ‘029

| <b>Mueller – Ex. 1006</b>                                                                                                                                                                                                                                                   | <b>Mueller ‘029 – Ex. 2005</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>Abstract, [0251], [0262], [0265] for an LED based lighting system</p> <p>Abstract, [0064] for an LED-based lighting unit</p> <p>Fig. 3 for a linear LED lighting device</p> <p>[0194] for a Variety of colors of LEDs</p> <p>see Petition, pp. 54-55 re Claim 1[pre]</p> | <p>LED based lighting system</p> <p>See LED lighting unit of Fig. 1 and see linear LED lighting unit of Fig. 3, which is identical to Fig. 3 of Mueller</p> <p>14:18-20 re LED based lighting system similar to [0064] of Mueller</p> <p>67:5-16 re lighting of white and other colors for museums, photography similar to [0251] of Mueller</p> <p>67:46-62 substantially same as [0262] of Mueller</p> <p>67:63 to 68:7 motion picture lighting system similar to [0265] of Mueller</p> <p>11:62 to 12:54 (esp. 11:67 to 12:4) re red, green, blue, white, orange, amber, ultraviolet, infrared, purple and may be in a linear configuration 306 similar to [0194] of Mueller</p> |

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| <p>[0064] for housing of a variety of shapes</p> <p>[0295] for T12 and T8</p> <p>see Petition, p. 55 re 1[a]</p>                                                                                                                                                                                          | <p>12:12-33 refers to a variety of light device configurations and 21:14 to 22:11 (esp. 21:52-53) refers to a variety of shapes such as T12 and T8 similar to Mueller</p>                                                                                                                                                                       |
| <p>[0064] re a variety of configurations of the lighting device</p> <p>[0295] re T12 and T8 fluorescent form factor</p> <p>see Petition, p. 56 bottom to top p. 57 re 1[b]</p>                                                                                                                            | <p>12:12-33 refers to a variety of light device configurations and 21:14 to 22:11 (esp. 21:45-53) refers to a variety of shapes for the lighting units 102 such as T12 and T8 similar to Mueller</p>                                                                                                                                            |
| <p>[0194] and [0064] re lighting unit having a wide variety of colors of LED in various mixtures or red, green and blue LEDs and can also use amber, white, UV, orange, IR or other colors</p> <p>[0308] re broad spectrum LED-based light source</p> <p>see Petition, pp. 57 bottom - 58 top re 1[c]</p> | <p>11:62 to 12:54 (esp. 11:67 to 12:4) re red, green, blue, white, orange, amber, ultraviolet, infrared, purple and may be in a linear configuration 306 similar to [0194] of Mueller</p> <p>14:18-20 re LED based lighting system similar to [0064] of Mueller</p> <p>35:61-66 and 36:52-67 re broad spectrum similar to [0308] of Mueller</p> |

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| <p>[0043] teaches “a lighting system that includes a plurality of LEDs selected from the group consisting of red, green, blue, amber, white, orange and UV LEDs” and [0044] teaches “a controller for controlling the color of light coming from the LEDs”</p> <p>[0064] discloses that the lighting system may have “various other components (e.g., control circuitry) relating to the operation of light source(s).”</p> <p>[0190] to [0192], [0265] to [0269] and Fig. 2 disclose a controller to provide varying amounts of power to each of the LEDs</p> | <p>11:62 to 12:54 (esp. 11:67 to 12:4) re red, green, blue, white, orange, amber, ultraviolet, infrared, purple and may be in a linear configuration 306 similar to [0043] of Mueller and 19:18-26 teaches that while a central controller can be used to send light of selected colors to the light pipe, in other embodiments a central controller is not needed for controlling the LEDs similar to [0044] of Mueller, especially when considered with [0015] of Mueller ‘029 discussed below</p> <p>2:41-48 teaches that the LED lighting system may have “an electronic component for controlling the LED... intensity” of light from the LED as in Mueller</p> <p>41:46 to 42:21 (esp. 41:61 to 42:3, along with Fig. 30 (which is the same as Fig. 2 of Mueller) disclose that “lighting unit controllers (LUCs) 3500 a, 3500 b, 3500 c,</p> |
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| see Petition, pp. 58-59 re 1[d]                                                                                                                                                                                                                                                                                                               | 3500 d for lighting units 102” control their respective lighting unit                                                                                                                                                                                                                                                                                                                                                                                                   |
| [0064] for powering the LED lights through the use of an LED driver that can control the power to the LEDs<br><br>See Petition, p. 60 (top)                                                                                                                                                                                                   | 11:62 to 12:54 (esp. 11:67 to 12:4), 2:41-48, 41:46 to 42:21(esp. 41:61 to 42:3, along with Fig. 30 teaching powering LED light through use of (see explanation of these paragraphs above) and also see 32:18-32 re feed forward driver for the LED-based light source                                                                                                                                                                                                  |
| [0064] for an LED lighting device that has a variety of mounting arrangements, shapes and electrical and mechanical connection<br><br>[0295] for resembling a T12 or T8 fluorescent tube<br><br>Assertions re a POSITA knowing that a T12 having a linear form factor and diameter of no more than 41 mm<br><br>Petition, p. 60 (bottom half) | 21:29-31 discloses that a “lighting unit 102 may have any one of a variety of mounting arrangements for the light source(s) in a variety of housings 800” as in Mueller<br><br>21:14 to 22:11 (esp. 21:45-53) discloses that “Lighting units 102 can also be configured to resemble fluorescent lamps [including] T12....” as in Mueller<br><br>Assertions re POSITA knowledge of T12 linear form factor and diameter would apply equally to Mueller ‘029 as to Mueller |

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| <p>Cites same portions of Mueller as for 1[f]</p> <p>See Petition, p. 61 (bottom half)</p>                                               | <p>21:29-31 discloses that a “lighting unit 102 may have any one of a variety of mounting arrangements for the light source(s) in a variety of housings 800” as in Mueller</p> <p>21:14 to 22:11 (esp. 21:45-53) discloses that “Lighting unit 102 can also be configured to resemble fluorescent lamps [including] T12....” as in Mueller</p>   |
| <p>Cites same portions of Mueller as for 1[f] and 1[g]</p> <p>See Petition, p. 62 (bottom)</p>                                           | <p>[21:29-31] discloses that a “lighting unit 102 may have any one of a variety of mounting arrangements for the light source(s) in a variety of housings 800” as in Mueller</p> <p>21:14 to 22:11 (esp. 21:45-53) discloses that “Lighting unit 102 can also be configured to resemble fluorescent lamps [including] T12....” as in Mueller</p> |
| <p>[0183] and [0158] for incremental control of RGBAW lights and also [0158] for DMX signal control of the RGBAW array for different</p> | <p>30:39-45 [0309] discloses use of DMX protocol and 33:22-40 [0323] disclose the same or substantially the same as the cited disclosure of Mueller at [0183] and [0158]</p>                                                                                                                                                                     |

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| <p>colors and that the DMX signal could provide 255 different colors: “[E]ach of the colors is driven with PWM to vary its apparent intensity. This system allows for the generation of millions of colors ....”</p> <p>[0043] for RGBAW</p> <p>See Petition, p. 64 (first full paragraph)</p> | <p>11:67 to 12:54 (esp. 11:67 to 12:4) [0199-0202] discloses red, green, blue, amber, white (among a list of others) the same or substantially the same as the cited disclosure of Mueller at [0043]</p> |
| <p>Same as citations for claim 3</p> <p>See Petition, p. 64 (near bottom)</p>                                                                                                                                                                                                                  | <p>Same as above for claim 3</p>                                                                                                                                                                         |
| <p>[0295] for lighting unit 100 being retrofitted into fixtures and resembling fluorescent T12 tubes</p> <p>See Petition, p. 64 (last line) to p. 65 (third line)</p>                                                                                                                          | <p>21:14 to 22:11 (esp. 21:45-53) discloses that “Lighting unit 102 can also be configured to resemble fluorescent lamps [including] T12....” as in Mueller</p>                                          |
| <p>Same as for claim 7 above</p> <p>See Petition, p. 65 (first full paragraph)</p>                                                                                                                                                                                                             | <p>Same as for claim 7 above</p>                                                                                                                                                                         |

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| <p>[0043] to [0051] for at least one<br/>amber LED</p> <p>See Petition, p. 65 (near bottom)</p>                                                       | <p>11:67 to 12:54 (esp. 11:67 to 12:4) [0199]<br/>discloses red, green, blue, amber, white<br/>(among a list of others) the same or<br/>substantially the same as the relevant cited<br/>disclosure of Mueller at [0043] to [0051]</p> |
| <p>Same as for claim 9 above</p> <p>See Petition, p. 65 (bottom) to p. 66<br/>(fourth line)</p>                                                       | <p>Same as for claim 9 above</p>                                                                                                                                                                                                       |
| <p>[0194] and [0062] to [0063] for<br/>white light desired color<br/>temperatures of 700K to over<br/>10,000K</p> <p>See Petition, p. 66 (middle)</p> | <p>15:4-30 disclose the same or substantially<br/>the same as Mueller at [0062] to [0063] and<br/>11:25-31 disclose the same or substantially<br/>the same as Mueller at [0194]</p>                                                    |

### APPENDIX 3 – IVEY (SIMON) V. SIMON ‘730

| Ivey (Simon) – Ex. 1008                                                                                                                                                                                              | Simon ‘730 – Ex. 2006                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>Paragraphs [0006], [0016] to [0018] and Fig. 6 for a circular-cross section tubular LED light and cover having LEDs on a support and the light having end caps</p> <p>Petition, p. 55, bottom to p. 56 re1[a]</p> | <p>Paragraphs [0013]-[0015] disclose and Figs. 1 and 3 show a circular-cross section tubular LED light 16 and cover having LEDs on a support (circuit board 24) and the light having end caps 28 which are the same as or substantially similar to Ivey.</p>                                                                                                                                                                                                                                              |
| <p>Paragraphs [0020] to [0021] for a controller that independently controls power to different sets of the LEDs</p> <p>Petition, p. 59, bottom paragraph re 1[d]</p>                                                 | <p>Paragraphs [0017] to [0018] and Figs. 1, 3 show a controller 25 that provides power to different sets of LEDs such as individual LEDs which is the same as or substantially similar to Ivey:</p> <p>“The controller 25 can also be configured to regulate the amount of power provided to the LEDs 26. That is, the controller 28 [sic, 25] can govern the amount of power provided from the end caps 28 to the LEDs 26. The controller 28 [sic, 25] can be in communication with multiple subsets</p> |

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|                                                                                                                                                                                                                                                                                                                              | <p>of LEDs 26 (such as individual LEDs 26) for providing a different amount of power to one or more of the subsets of LEDs 26.”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p>Paragraphs [0006], [0016] to [0018] and Fig. 6 for compatibility with a fluorescent fixture, and can have a length 48” long and a diameter of 0.625”, 1.0” or 1.5” and have end caps with bipins for physically and electrically connecting the light to the fixture.</p> <p>Petition, p. 60, bottom to p. 61 re 1[f]</p> | <p>Paragraphs [0013] and Figs. 1 and 3 disclose: “For compatibility with the fixture 14 as discussed above, the housing 22 can have a length such that the light 16 is approximately 48” long, and the housing 22 can have a 0.625”, 1.0”, or 1.5” diameter.”</p> <p>[0012] discloses that the light fixture 14 is for a fluorescent tube.</p> <p>[0015] and Figs. 1 and 3 disclose that “The light 16 can include two bi-pin end caps 28 ... for physically and electrically connecting the light 16 to the fixture 14.”</p> <p>All of the above is the same and/or substantially similar to Ivey.</p> |
| <p>Paragraphs [0006], [0016] to [0018] and Fig. 6 for a housing with opposite</p>                                                                                                                                                                                                                                            | <p>Paragraphs [0017]-[0018] and Figs. 1 and 3 show a circular-cross section tubular</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>ends and a top side and a bottom side.</p> <p>Petition, p. 62, top half of page</p>                                                                                                                                                                                                                                                                      | <p>LED light 16 and cover having LEDs on a support (circuit board 24) and the light having end caps 28 which are the same as or substantially similar to Ivey.</p>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Paragraphs [0006], [0016] to [0018] and Fig. 6 for a tubular housing with a support structure on which the LEDs are mounted, opposite ends of the housing having opposite ends, a top side and an opaque bottom side, and LEDs emitting light out of the transparent top side, and a light diffusing cover.</p> <p>Petition, p. 63, top half of page</p> | <p>Paragraphs [0013]-[0015] disclose and Figs. 1 and 3 show a circular-cross section tubular housing for an LED light 16 having LEDs on a support (circuit board 24) having a top and a bottom, and the light device having opposite ends (end caps 28). And, specifically in [0013]:</p> <p>“such a housing can include an opaque lower portion and a lens or other transparent cover....The housing 22 can [have a top side with] light diffusing or refracting properties...” where the LED light is emitted.</p> <p>All of the above are the same as or substantially similar to Ivey.</p> |

**CERTIFICATE OF WORD COUNT UNDER 37 C.F.R. § 42.24(b)(1)**

I, the undersigned, do hereby certify that the foregoing Patent Owner Preliminary Response, including footnotes and appendices, contains no more than 14,000 words (but excluding the table of contents, table of authorities, and certificate of service or word count) as measured by the Word Count function of Microsoft Word as specified by 37 C.F.R. § 42.24(b)(1).

*/David L. Hoffman/*

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David L. Hoffman

**CERTIFICATE OF SERVICE**

I hereby certify that on this 11th day of July 2023, a true and correct copy of the foregoing PATENT OWNER'S PRELIMINARY RESPONSE was served by electronic mail upon the following counsel of record for Petitioners:

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