UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VITEC PRODUCTION SOLUTIONS, INC.,
Petitioner,

v.

ROTOLIGHT LIMITED,
Patent Owner.

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IPR2022-00262
Patent 10,197,258 B2

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Before MICHELLE N. ANKENBRAND, GRACE KARAFFA OBERMANN, and AVELYN M. ROSS, *Administrative Patent Judges.*

ROSS, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

Vitec Production Solutions, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1–22[1] of U.S. Patent No. 10,197,258 B2 (Ex. 1001, "the '258 patent"). Rotolight Limited ("Patent Owner") filed a Preliminary Response to the Petition. Paper 6 ("Prelim. Resp.").

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2020); 37 C.F.R. § 42.4(a). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted "unless the Director determines . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least [one] of the claims challenged in the petition."

For the reasons set forth below, and upon considering the Petition, the Preliminary Response, and evidence of record, we determine that information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim. Accordingly, we deny the Petition, and do not institute an *inter partes* review.

A. *Real Parties-in-Interest*

Petitioner states that "[t]he real party-in-interest is Petitioner Vitec Production Solutions, Inc." Pet. 1.[2] Patent Owner identifies Rotolight

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[1] Although the first paragraph of page 1 of the Petition lists only claims 1–21, all claims 1–22 are challenged in this *inter partes* review instead. *See* Pet. 1–2.

[2] The Petition includes pages 1 and 2, twice—the first instance has a heading, "Mandatory Notices" and the second instance is headed

Limited and Rotolight Group Ltd. as real parties-in-interest. Paper 4, 1
(Patent Owner's Mandatory Notices).

B. Related Proceedings

The parties identify the petitions for *inter partes* review challenging
U.S. Patent Nos. 10,197,257 B2 (IPR2021-01496 and IPR2022-00261),
10,197,258 B2 (IPR2021-01497), and 10,203,101 B2 (IPR2021-01498) as
related matters. Pet. 1; Paper 4, 1. Patent Owner also identifies the petition
for *inter partes* review challenging U.S. Patent No. 10,845,044 B2
(IPR2022-00099) as a related matter. Paper 4, 1.

C. The '258 Patent

The '258 patent, titled "Lighting System and Control Thereof," issued
on February 5, 2019. Ex. 1001, codes (45), (54). The '258 patent "relates to
a lighting system, and the control of a lighting system, and the simulation of
lighting special effects, and in particular to a lighting system for
videography, broadcasting and cinematography." Ex. 1001, 1:17–20.

According to the '258 patent, a typical "lighting controller called a
'flicker box' . . . is used to produce flickering light effects to mimic
flickering light for example from a fire place, candle, electrical spark or
lightning." *Id.* at 1:21–25. But flicker boxes are "complex, costly and time
consuming" to set up, and the "connection and control of multiple pieces of
hardware . . . requir[e] a physical wired connection to the 'hot' light source
desired to be controlled." *Id.* at 1:30–35. Flicker boxes are also
"incompatible with LED light sources" and "require the use of 'hot'

"Introduction." Here, we refer to the first instance, Mandatory Notices. In
regard to the Real Parties-In-Interest and Related Proceedings, we also refer
to the first set of pages 1 and 2 of the Petition.

incandescent light sources which are energy inefficient and also pose health and safety risks to those working on set." *Id.* at 1:39–42.

The "improved solution" the '258 patent offers includes methods, controllers, and computer programs "for controlling a lighting device to produce user customisable lighting effect," by, among other things, "calculating a time varying lighting value based on at least one simulation parameter" and "outputting said time varying lighting value thereby to simulate a lighting effect." *Id.* at 1:45–51, 2:61–67, 3:37–43. Figure 2 is illustrative and reproduced below.
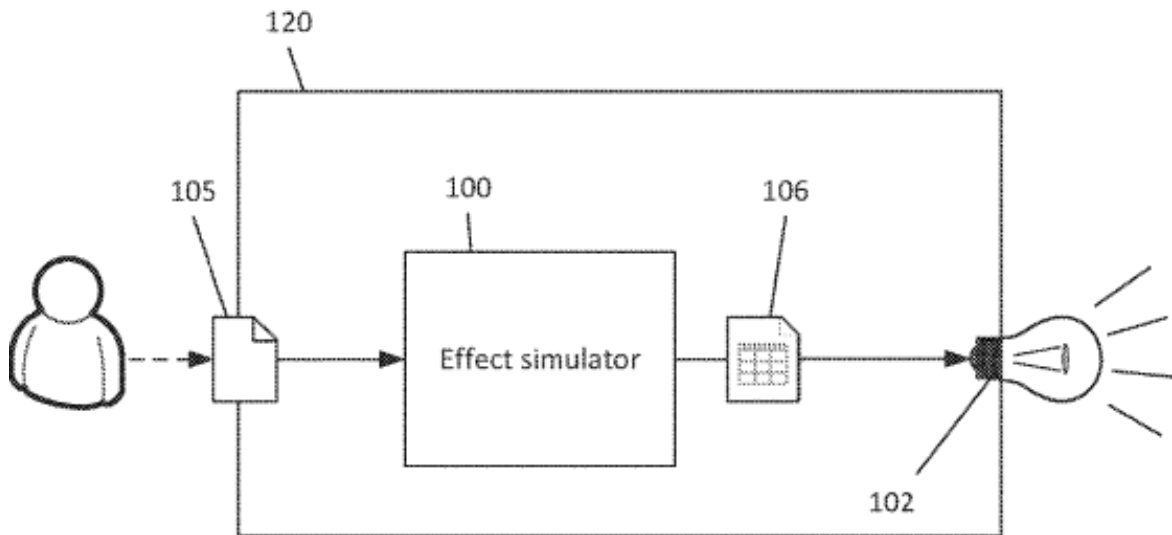

Figure 2

Figure 2 "is a schematic diagram of a further lighting system." *Id.* at 5:29. Figure 2 shows studio lamp device 120 that includes input interface 105 and lighting effect simulator 100 which produces data 106 used to modulate light 102. *Id.* at 5:55–6:11. "In one example, the light 102 is an array of LEDs, preferably of differing colours" and a "microcontroller or other computing unit is integrated in the lamp device 120 for performing

calculations." *Id.* at 5:63–6:3. The '258 patent explains that "[t]his arrangement does not require the DMX distribution hub 302 [and] power elements 304, 306" required in a flicker box lighting system. *Id.* at 5:64–66.

Figure 6, reproduced below, illustrates a simulated lighting effect that employs an exemplary graphic user interface.
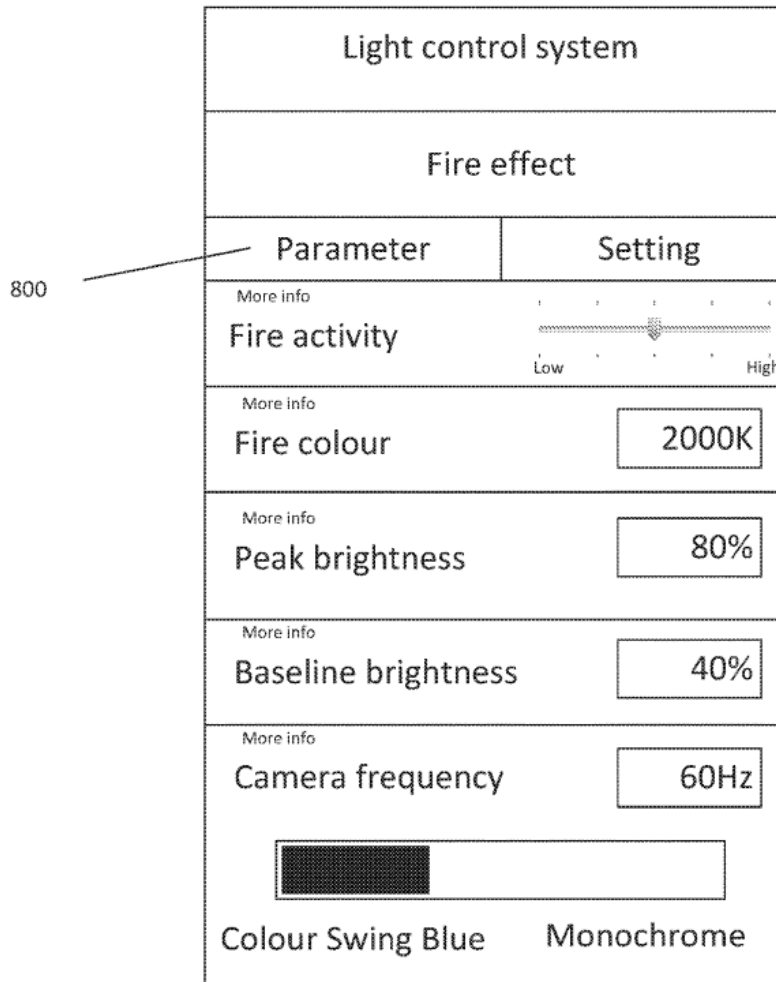

Figure 6

Figure 6 "is a graphic user interface [800] for user input of simulation parameters." *Id.* at 5:35–36. According to Figure 6, the simulated effect is a

fire effect. *Id.* at 8:17–25. Interface 800 allows the user to select a "fire activity" by sliding the slider between low to high and set values for "fire colour," "peak brightness," "baseline brightness," and "camera frequency." *Id.*

D. Illustrative Claim

Petitioner challenges claims 1–22 of the '258 patent, with only claim 1 being the independent claim. Claim 1, reproduced below, is representative of the challenged claims.

> 1.   A lighting system comprising:
> a lighting device; and
>
> a controller adapted to control the lighting device to produce a user customisable cinematic lighting special effect selected from a range of different user customisable cinematic lighting special effects, the controller comprising:
>
>> an input interface for receiving user input to enable a user to select user customisable cinematic lighting special effect from said range of different user customisable cinematic lighting special effects; and
>>
>> an effect simulator adapted to calculate a time varying lighting value based on at least one simulation parameter, said at least one simulation parameter depending on the selected user customisable cinematic lighting special effect being simulated, and adapted to output said time varying lighting value to said lighting device so as to simulate the selected user customisable cinematic lighting special effect;
>
> wherein said lighting device and said controller are integrated in a combined unit.

Ex. 1001, 11:59–12:12.

E. The Asserted Unpatentability Challenge

Petitioner asserts that claims 1–22 would have been unpatentable on the following ground:

Claims Challenged	35 U.S.C. §	References/Basis
1–22	103[3]	Morgan,[4] Hinrichs,[5] Pohlert[6]

Pet. 2. Petitioner also relies on declaration testimony of Fred Holmes (Ex. 1003) to support its allegations.

II. ANALYSIS

A. Principles of Law

"In an IPR [(*inter partes* review)], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (2012) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Furthermore, a petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Obviousness is a question of law based on underlying determinations of fact. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966); *Richardson-Vicks, Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997). A claim is

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[3] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), effective as of March 16, 2013. Given that the application from which the '258 patent issued was filed after this date, the current version of § 103 applies.

[4] Morgan et al., US 8,938,468 B2, issued Jan. 20, 2015 (Ex. 1005, "Morgan").

[5] Hinrichs, US 9,532,422 B2, issued Dec. 27, 2016 (Ex. 1006).

[6] Pohlert et al., US 7,874,701 B2, issued Jan. 25, 2011 (Ex. 1007, "Pohlert").

unpatentable as obvious, under 35 U.S.C. § 103, if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.[7] *Graham*, 383 U.S. at 17–18.

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

B.   *Level of Ordinary Skill in the Art*

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 17.

Petitioner contends that a person of ordinary skill in the art "would have had at least 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, controls and effects." Pet. 3 (citing Ex. 1003). Petitioner further states that "[m]ore education can supplement practical experience and vice versa." *Id.* Patent Owner does not, at this time, dispute Petitioner's proposed definition. *See* Prelim. Resp. 25.

On this record, we determine that Petitioner's proposed definition is consistent with the prior art of record, and apply it for this Decision. *See*

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[7] The parties have not asserted or otherwise directed our attention to any objective evidence of nonobviousness.

Okajima v. Bourdeau, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings on ordinary skill level are not required "where the prior art itself reflects an appropriate level and a need for testimony is not shown" (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))).

C. Claim Construction

Petitioner proposes construction for claim terms "cinematic lighting special effect" and "effect simulator." *See* Pet. 3–6. Patent Owner states that it "requests that the Board adopt the ordinary and customary meaning of the claim terms as understood by one of ordinary skill in the art." Prelim. Resp. 24.

We need not expressly construe any claim terms because resolution of the issues presented in this Petition for *inter partes* review are not based on any particular claim construction the parties advance. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that "only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy"); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs.* in the context of an *inter partes* review).

D. Alleged Obviousness Based on Morgan, Hinrichs, and Pohlert

Petitioner alleges that the combination of Morgan, Hinrichs, and Pohlert renders obvious claims 1–22. Pet. 13–43. Petitioner relies on the testimony of Mr. Holmes to support its arguments. *See id.*

1. Overview of Morgan (Ex. 1005)

Morgan is directed to "methods and apparatus for facilitating the process of designing, selecting, and/or customizing lighting effects or

lighting shows." Ex. 1005, 2:48–51. Morgan explains that "a 'lighting effect' refers to one or more states of light that are perceived as an entity over some period of time" and "[a] lighting effect may have one or more static and/or dynamic characteristics" in which "exemplary dynamic characteristics may relate to one or more of color, brightness, perceived transition speed, perceived motion, periodicity, and the like." *Id.* at 1:47–55. Morgan discloses that in one of its embodiments, a user can query input information and search a plurality of indexed predefined lighting effects based at least in part on the input information, in which each lighting effect of the plurality of lighting effects has at least one searchable attribute associated therewith. *Id.* at 3:6–13. The at least one searchable attribute can relate to a color content of light to be generated, a color resolution, a color distribution or color spatial frequency, at least one dynamic temporal characteristic of the light, a viewing perspective of a viewer of the light, at least one preferred object to be illuminated by the light, and a geometric configuration of a plurality of lighting units. *Id.* at 3:57–4:10. Morgan further explains that a user interface allows an interface between a human user or operator and one or more devices that enables communication between the user and the devices. *Id.* at 8:24–27, 24:23–40.

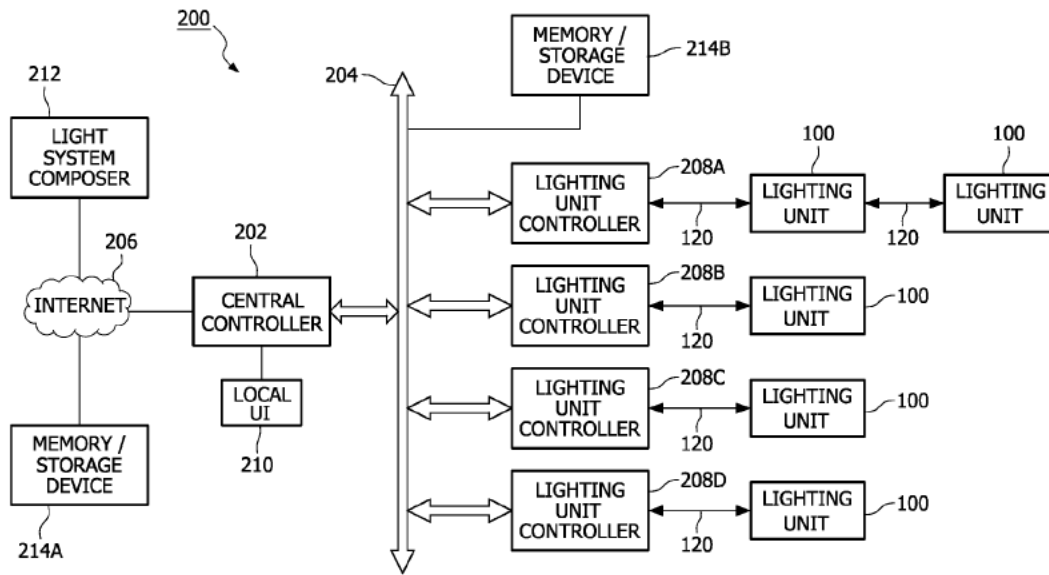One embodiment of Morgan's lighting apparatus is reproduced below.

FIG. 2

Ex. 1005, Figure 2. Figure 2 "is a generalized block diagram illustrating a networked system of lighting units." *Id.* at 8:47–49. Figure 2 shows networked lighting system 200 includes lighting units 100 and lighting unit controllers 208A–D. *Id.* at 19:32–33, 19:61–63. Each of lighting unit controllers 208A–D "is responsible for communicating with and generally controlling one or more lighting units 100 coupled to it." *Id.* at 19:63–65. Networked lighting system 200 also includes central controller 202 that may be associated with local user interface 210. *Id.* at 21:48–51. Each of lighting unit controllers 208A–D in turn may be coupled to central controller 202. *Id.* at 20:8–10. Another component is "light system composer [212 that] may encode an authored lighting effect . . . to provide a lighting program that may be executed by" central controller 202 to generate lighting commands for one or more lighting units 100 of lighting system 200. *Id.* at 22:12–18. Lighting unit 100 may be employed in a variety of applications including "theatrical or other entertainment-based/special effects lighting."

Id. at 10:46–52. Lighting unit 100 can also include controller 105 (shown in Figure 1) that is "configured to output one or more control signals to drive the light sources so as to generate various intensities of light from the light sources." *Id.* at 11:22–25. Lighting unit 100 may also include user interfaces 118 (also shown in Figure 1) "to facilitate any of a number of user-selectable settings or functions" such as "changing and/or selecting various pre-programmed lighting effects to be generated by the lighting unit" and "changing and/or selecting various parameters of selected lighting effects." *Id.* at 14:4–10. Lighting system 200 includes a component or "storage facility 214A" that "may generate the lighting effect using the executable lighting program and may monitor the generated illumination to determine one or more characteristics of the lighting effect" such that "the component may simulate the lighting effect in any suitable manner and monitor illumination generated in the simulation." *Id.* at 32:15–22.

2. Overview of Hinrichs (Ex. 1006)

Hinrichs is titled "Method of Prioritizing and Synchronizing Effect Functions in an Illumination Device." Ex. 1006, code (54). Hinrichs discloses light fixtures for "creating various effects [that] are getting more and more used in the entertainment industry" in connection with "live shows" and "TV shows." *Id.* at 1:17–20. According to Hinrichs, "it can be quite complicated to create nice and good looking visual effects when two different effect functions is combined, as the combination of effect functions does not always look nice." *Id.* at 2:20–23. Hinrichs purports to solve this and other problems by providing an illumination device having a moving head lighting fixture with number of LEDs (light emitting diodes) that generate a light beam. *Id.* at 2:51–54, 3:13–15. In one embodiment, the

illumination device includes a display and a PCB (printed circuit board) with switches such that "[t]he switches and display act as a user interface allowing a user to communicate with the moving head lighting fixture." *Id.* at 3:26–44, 3:63–67. Hinrichs discloses that the illumination device can have "a number of predetermined effect functions defining a number of visual effects which can be activated by a user through an input signal e.g. from a central controller." *Id.* at 5:51–54. For such effect functions, a controlling means is used that "is capable of activating at least two of the effect functions at the same time." *Id.* at 6:1–3.

The controlling means is adapted to control groups of light sources based on an input signal "indicative of a number of control parameters." *Id.* at 9:17–19. "The control parameters may be indicative of color, intensity, [and] strobe frequency, related to the groups of light sources" and the strobe frequency "may define how fast the different groups should strobe." *Id.* at 9:20–21, 9:29–30. The input signal "can be also indicative of an effect function adjustment parameter which relates the execution of respectively the effect function" and "the adjustment parameter can be indicative of an execution speed of an effect function which increases or decreases the time period of the effect function." *Id.* at 9:48–53. An output "indicates the output [for] the effect function." *Id.* at 9:65. Hinrichs discloses that these effect functions "make it easier for a light programmer and/or light designer to create different visual effects." *Id.* at 9:55–57.

3. *Overview of Pohlert (Ex. 1007)*

Pohlert "relates to lighting apparatus and systems as may be used in film, television, photography, and other applications." Ex. 1007, 1:19–21. Pohlert discloses that it would be "advantageous to provide a lighting

apparatus or lighting effects system that is well suited for use in the film, commercial, and/or photographic industries, and/or with live stage performances." *Id.* at 4:8–12. In one embodiment, Pohlert provides a "power controller" for providing various lighting effect functions such as "dimming, strobing, selective activation, pulsation, and so on, or combinations thereof." *Id.* at 9:26–31.

One embodiment of Pohlert's lighting apparatus is reproduced below.
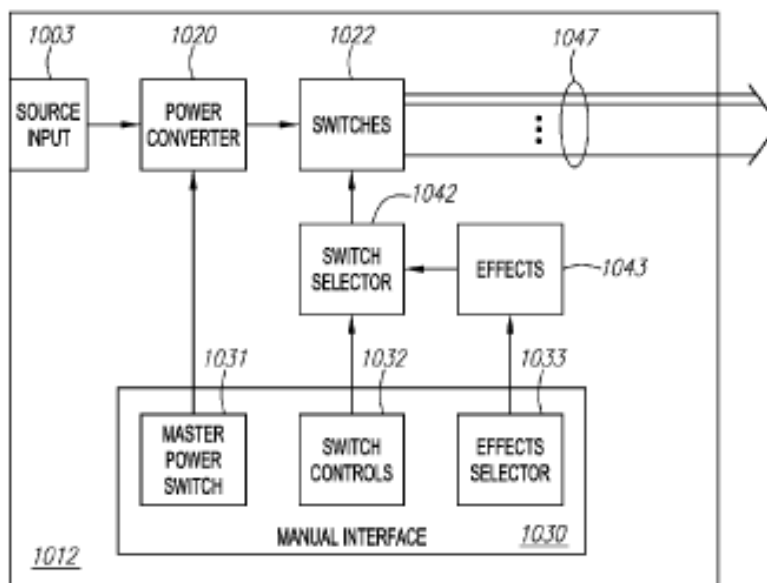

FIG. 10A

Ex. 1007, Fig. 10A. Figure 10A is a block diagram that shows a type of electronic controller as may be employed in a lighting effects system. *Id.* at 5:21–23. Power controller 1012 includes manual interface 1030 that allows operation of switches 1022 "according to manual selection." *Id.* at 19:40–44, 19:64–66. Power controller 1012 may optionally include effects generator 1043, along with effects selector 1033 which forms part of the manual interface 1030 so that effects generator 1043 provides "the ability to create various lighting effects" such as "dimming, strobing,

pulsation, or pattern generation." *Id.* at 20:23–27. Pohlert discloses that "[p]attern generation may be accomplished by, e.g., manual selection from a number of predefined patterns, or else through an interface allowing different pattern sequencing." *Id.* at 20:57–59.

4. Analysis of Claim 1

Petitioner alleges that Morgan in view of Hinrichs and Pohlert renders claim 1 of the '258 patent invalid as obvious. Pet. 13.

a) Petitioner's allegations

Petitioner contends that "Morgan and Hinrichs satisfy the preamble of Claim 1." *Id.* Specifically, Petitioner asserts that Morgan describes a "lighting system [that] may include a plurality of lighting units, and so the input information relates to a number of the lighting units, respective types of the lighting units, and/or a physical arrangement of the lighting units in an environment in which the at least one lighting effect is to be generated." *Id.* at 13–14 (citing Ex. 1005, 3:37–44) (alteration in original).

According to Petitioner, each of "Morgan, Hinrichs, and Pohlert teach lighting systems comprising a lighting device." *Id.* at 14. Petitioner argues that Morgan describes a lighting device, as claimed, where "Morgan discloses that its subject lighting system 'may include a plurality of lighting units.'" *Id.* (quoting Ex. 1005, 3:37–38). Petitioner argues that "[t]he term 'lighting unit' as used in Morgan refers 'to an apparatus including one or more light sources of same or different types.'" *Id.* (quoting Ex. 1005, 6:57–59). Petitioner contends that "Hinrichs focuses on 'a moving head lighting fixture including a number of LEDs that generate a light beam,' but its teachings encompass 'illumination devices using any kind of light source such as discharge lamps, OLEDs, plasma sources, halogen sources,

fluorescent light sources.'" *Id.* (quoting Ex. 1006, 3:13–19). Petitioner asserts that "Pohlert teaches 'a lighting effects system' having 'an arrangement of lamp elements on a panel or frame' where the 'lamp elements may be embodied as low power lights such as light emitting diodes (LEDs).'" *Id.* (quoting Ex. 1007, 8:39–42).

Next, Petitioner argues that Morgan, in view of Hinrichs and Pohlert, suggests "a controller adapted to control the special lighting device to produce a user customisable cinematic lighting effect selected from a range of different user customisable cinematic lighting special effects" as claimed. *Id.* at 15 (citing Ex. 1003 ¶¶ 70–79). Petitioner contends that "Morgan teaches a 'controller' that produces user customisable lighting effects" because "Morgan teaches that 'one or more candidate lighting effects may . . . [be] processed by the central controller' to 'control the lighting system accordingly.'" *Id.* (citing Ex. 1005, 25:39–51) (alterations in original). According to Petitioner, "Morgan also discloses that the lighting unit may include a controller 'configured to output one or more control signals to drive the light sources.'" *Id.* (citing Ex. 1005, 11:22–25, 13:15–21).

Petitioner asserts that Morgan discloses that "the 'user may select one or more of the candidate lighting effects'" and that the effects are user customizable because "user functionality includes 'changing and/or selecting various pre-programed lighting effects to be generated by the lighting unit [or] changing and/or selecting various parameters of selected lighting effects.'" *Id.* (citing Ex. 1005, 14:4–12, 25:31–39, 10:46–58) (alterations in original).

Petitioner contends that "[t]he 'lighting effects' of Morgan include, without limitation 'theatrical or other entertainment-based/special effects

lighting,'" and therefore Morgan includes the claimed "cinematic lighting effects." *Id.* (citing Ex. 1005, 10:46–58). Petitioner, through the testimony of Mr. Holmes, asserts that a person of ordinary skill in the art would have understood that the term "'theatrical or entertainment-based/special effects lighting' includes, without limitation, lighting effects used for videography, broadcasting, cinematography, studio filming, or location filming." *Id.* at 16 (quoting Ex. 1003 ¶ 78). Petitioner also asserts that a person of ordinary skill in the art would have understood Morgan's discussion of controlling the frequency of the signals to suggest "cinematography, videography, and similar applications," because the skilled artisan "would recognize an adjustment tool for reducing 'flicker effect' satisfies the functionality of 'rolling shutter compensation' in the field of cinematography, and, consequently, would understand that the 'special effects' of Morgan satisfies the 'cinematic lighting special effects' requirement of Claim 1 of the '258 Patent." *Id.* at 16, 43 (quoting Ex. 1003 ¶ 81; citing Ex. 1005, 12:14–28).

Petitioner argues that both Hinrichs and Pohlert describe "a controller adapted to control the lighting device," as claimed. *Id.* at 17–18 (citing Ex. 1006, 4:62–66; Ex. 1007, 20:22–28). In particular, Petitioner alleges "Hinrichs 'can further comprise a number of predetermined effect functions which can be activated by a user through an input signal e.g., from a central controller as known in the art of entertainment lighting,'" which may be user customizable because "multiple predetermined effects can be combined into other effects." *Id.* at 16–17 (citing Ex. 1006, 5:51–55, 6:1–14, 9:42–57, 29:28–36; Ex. 1003 ¶ 74). With respect to Pohlert, Petitioner alleges that Pohlert describes a "power controller [that] may include '[a]n effects generator 1043 . . . along with an effects selector 1033 which forms part of

the manual interface 1030' where '[t]he effects generator 1043 may provide the ability to create various lighting effects.'" *Id.* at 18 (citing Ex. 1007, 20:22–28). Petitioner also alleges that "Pohlert further teaches that such effects can be used for "film." *Id.* (citing Ex. 1007, 4:8–13).

Petitioner next argues that Morgan, Hinrichs, and Pohlert each teach "an input interface for receiving user input to enable a user to select user customisable cinematic lighting special effect[s]." *Id.* at 18–19 (citing Ex. 1003 ¶¶ 74–84; Ex. 1006, 3:63–67; Ex. 1007, 19:64–20:1, 20:57–61). In particular, Petitioner alleges that "Morgan teaches a 'user interface' (input interface) where 'a user may select one or more of the [] lighting effects' that will be transmitted to the 'controller to generate the lighting effect(s).'" *Id.* at 18 (citing Ex. 1005, 25:39–51, 11:22–25, 13:15–21) (alteration in original). Petitioner explains that "[i]t is through this user interface ('input interface') that a 'user may select one or [more] of the candidate lighting effects' ([Ex. 1005], 25:28–39) and then 'change one of the colors produced by the lighting effect/show, change a reproduction speed for the lighting effect, or change any other characteristic of the lighting effect.'" *Id.* (quoting Ex. 1005, 25:28–29 and citing *id.* at 26:14–17, 14:4–12). Petitioner contends that Hinrichs also teaches a lighting system that includes "a main PCB [comprising] a number of switches (not shown) which extend through a number of holes in the head housing" where the switches and display function "as a user interface allowing a user to communicate with the moving head lighting fixture." *Id.* at 19 (quoting Ex. 1006, 3:63–67) (alteration in original). Petitioner further argues that "Pohlert teaches a 'manual interface 1030' that 'may include a master power switch 1031, switch controls 1032, and, optionally, an effect selector.'" *Id.* (quoting

Ex. 1007, 19:64–20:1). Petitioner explains that "Pohlert's manual interface facilitates effect 'generation . . . by, e.g., manual selection from a number of predefined patterns.'" *Id.* (quoting Ex. 1007, 20:57–61).

Next, Petitioner alleges that Morgan in view of Hinrichs teaches "an effect simulator adapted to calculate a time varying lighting value based on at least one simulation parameter," as claimed. *Id.* (citing Ex. 1003 ¶¶ 91–102). Specifically, Petitioner argues Morgan describes an "effect simulator adapted to calculate" where "Morgan teaches that 'one or more of the library of lighting effects/shows' and 'one or more (or all) functional aspects of a user interface … and library searching may be performed by a controller that also controls the lighting system that generates the lighting effect(s)/show(s).'" *Id.* (quoting Ex. 1005, 10:16–21; citing Ex. 1003 ¶¶ 91–93). Petitioner explains that the lighting effects may have static and dynamic characteristics and relate to "color, brightness, perceived transition speed, perceived motion, periodicity, and the like" and the effects include "'color content, 'color resolution,' color distribution or color spatial frequency,' and/or 'at least one dynamic temporal characteristic' of the selected light[]."" *Id.* at 20 (citing Ex. 1005, 3:45–67, 14:4–13, 32:15–22).

In addition, Petitioner asserts that "[t]o the extent Morgan does not explicitly discuss 'calculat[ing] a time varying lighting value,' Hinrichs teaches that its subject lighting system controller provides outputs based on 'effect functions,' and thereby satisfies the 'effect simulator' requirement of Claim 1." *Id.* (citing Ex. 1003 ¶ 94). According to Petitioner, Hinrichs describes "effect functions," i.e. "simulation parameters," based on input by the user. *Id.* at 21 (citing Ex. 1006, 9:60–64). The controller uses the "effect functions" to control the light sources. *Id.* (citing Ex. 1006, 28:49–

55). Petitioner explains that "the controlling means must execute [effect functions] in relation to time and in relation to each other." *Id.* (quoting Ex. 1006, Abstract) (alteration in original). Petitioner also asserts that "Hinrichs teaches 'control parameters' which are indicated by the input signal and which determine how lighting varies over time" because "'strobe frequency may define how fast the different groups of light should strobe.'" *Id.* (citing Ex. 1006, 9:25–33).

Petitioner further alleges "Pohlert, like the '258 Patent, teaches that the power controller 112 may include a 'manual interface 1030,'" and that "'power controller 1012, along with an effects selector 1033, which forms part of the manual interface,' may communicate with an 'effects generator 1043.'" *Id.* at 22–23 (citing Ex. 1007, 19:64–67, 20:23–25; Figs. 10A, 10B). Petitioner argues that "the 'effects generator 1043 may provide the ability to create various lighting effects,' ([Ex. 1007], 20:25–28) that are 'manual[ly] select[ed] from a number of predefined patterns'" and a "switch selector 1042 would then convert each [effect selector control mechanism setting] to a set of control signals to the appropriate switches 1022, which in turn would control power to the wires 1047 supplying power to the light segments 306.'" *Id.* at 23 (citing Ex. 1007, 20:14–17, 20:25–28, 20:57–61); *see also id.* (explaining that "Pohlert further teaches these processes may be carried out by a power controller that 'includes a processor 1074 which may be programmed to provide various lighting effects' ([Ex. 1007], 21:20–25)— the effects generator—by 'control[ling] the switch selector [through] setting various digital values.'"). According to Petitioner, "Pohlert further teaches that a strobing effect from the effects generator 'may be accomplished by generating an oscillating signal and applying it as a control signal either

upstream or downstream from the switch selector 1042' where the 'frequency of oscillation may be selectable via a manual knob, switch or other selection means as part of the effects selector 1033.'" *Id.* (quoting Ex. 1007, 20:52–56).

Petitioner next alleges that Morgan, Hinrichs, and Pohlert are "adapted to output said time varying lighting value to said lighting device so as to simulate the selected user customizable cinematic lighting special effect," as claimed. *Id.* at 19–20, 22. For example, Petitioner contends that Morgan is "'particularly configured to provide control signals to one or more of the light sources so as to generate a variety of' lighting effects." *Id.* at 20 (citing Ex. 1005, 13:10–15). Petitioner also argues that the "output" of the effect functions controls the light sources. *Id.* at 21 (citing Ex. 1006, 28:49–55). And Petitioner contends that "Hinrichs teaches that its subject lighting system controller provides outputs based on 'effect functions.'" *Id.* at 20; *see also id.* at 22 (explaining that "[t]he 'output' of the effect function is . . . 'related to the controlling of the light sources.'"). Petitioner similarly alleges that "Pohlert's disclosure of a controller and effect simulator outputting an effect" to a lighting source, is similar to that of the '258 patent. *Id.* at 22 (citing Ex. 1007, Fig. 10A).

Lastly, Petitioner argues that Morgan and Hinrichs describe a system where the "lighting device and [the] controller are integrated into a combined unit," as claimed. *Id.* at 24. For example, Petitioner directs our attention to Morgan's disclosure "that the 'lighting unit 100 also includes a controller.'" *Id.* at (quoting Ex. 1005, 11:22–23); *see also id.* (citing Ex. 1005, 19:63–67 and explaining that Morgan describes "that a lighting unit 'may be associated with (e.g., include, be coupled to and/or packaged

together with) various other components (e.g., control circuitry) relating to the operation of the light source(s)."). Furthermore, Petitioner contends that "combining similar combinations of known elements or components into an integrated whole have been an obvious design choice for a [person of ordinary skill in the art], and doing so would not have posed any difficulties." *Id.* (citing Ex. 1003, ¶¶ 103–104). Petitioner further asserts that Hinrichs describes an integrated system where Hinrich explains that "its subject lighting systems may include a head housing into which a 'display 115 (visible from the rear side of the stack), main PCB 117 (Printed Circuit Board), a fan 119, a heat sink 121, an LED PCB 123, and lens assembly are stacked'" and "teaches that the 'main PCB comprises controlling circuits and driving circuits.'" *Id.* (quoting Ex. 1006, 3:41–45, 3:60–62). Based on these teachings, Petitioner reasons that the person of ordinary skill in the art "might reasonably infer that these elements were 'integrated' in a combined unit as required by Claim 1." *Id.* (citing Ex. 1003 ¶ 107). Petitioner also contends that "similar combinations of known elements or components into an integrated whole have been held to be obvious." *Id.* at 24–25 (citing *Commscope Tech.'s LLC v. Dali Wireless Inc.*, No. IPR2020–014731, 2021 WL 952424, at *14 (PTAB Mar. 12, 2021) ('[U]se of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.' (quoting *In re Larson*, 340 F.2d 965, 968 (C.C.P.A. 1965))).

Petitioner asserts that Morgan, Hinrichs, and Pohlert are analogous art because they are "in the same field of endeavor as the '258 Patent—namely, the field of lighting systems and methods for producing lighting special effects which utilize a plurality of LEDs to generate different types of effects

and colors." Pet. 12 (citing Ex. 1003 ¶¶ 61–62). And Petitioner contends that because they disclose related approaches for solving the problems that one of ordinary skill in the art would have expected to encounter in the design and implementation of lighting systems and methods for producing such special effects, a person of ordinary skill in the art would have been motivated to combine their teachings. *Id.* at 12–13 (citing Ex. 1003 ¶ 63). Petitioner further reasons that "the combinations of Morgan, Hinrichs, and/or Pohlert proposed herein are combinations of known techniques and/or substitutions of art-known elements to yield predictable results." *Id.* at 13 (citing Ex. 1003 ¶ 64).

b) Patent Owner's arguments

Patent Owner argues Petitioner fails to demonstrate a reasonable likelihood of showing that Morgan in view of Hinrichs and Pohlert renders the challenged claims of the '258 patent obvious. *See generally* Prelim. Resp. 34–59. In particular, Patent Owner asserts that the combination of Morgan, Hinrichs, and Pohlert fails to disclose each of claim 1's limitations. *Id.* at 32–53. Further, Patent Owner argues that Petitioner fails to show that Morgan, Hinrichs, and Pohlert are analogous art, that a reason to combine Morgan, Hinrichs, and Pohlert would have existed, or that a reasonable expectation of success would have existed in the combination of Morgan, Hinrichs and Pohlert. *Id.* at 53–59.

Because we are persuaded by Patent Owner's argument that Petitioner fails to show that the combination of Morgan, Hinrichs, and Pohlert suggests "calculate[ing] a time varying lighting value based on at least one simulation parameter," *see id.* at 43–50, we limit our discussion below to Patent Owner's arguments regarding this claim limitation.

> c) *whether Petitioner has shown sufficiently that Morgan in view of Hinrichs and Pohlert suggests an effect simulator adapted to calculate a time varying lighting value*

Patent Owner argues that Petitioner "admits that Morgan 'does not expressly teach an "effect simulator" that "calculates" the lighting effect onboard the lighting system.'" Prelim. Resp. 44. Patent Owner further argues that "Petitioner makes no attempt whatsoever to show that any <u>calculation</u> of a time varying lighting value occurs in Morgan." *Id.* Instead, Patent Owner continues, "Morgan's 'controller,' which at best purports to *search* a library of <u>pre-packaged lighting effects</u>, does not satisfy the functionality of the 'effect simulator' of the '258 Patent." *Id.* According to Patent Owner, Morgan's "light system composer" "encodes lighting effects or lighting shows that are 'authored by a designer/programmer' into an executable program that is subsequently *used* by the controller" and "[t]hese executable programs are searched using criteria input by the user, and the results of the search are presented to the user." *Id.* at 44–45 (citing Ex. 1005, 22:8–24, 24:22–26:2). Then, "the <u>executable program(s)</u> are . . . transmitted to the controller." *Id.* at 45 (citing Ex. 1005, Fig. 3). And Patent Owner explains that "[w]hile Morgan discloses that the central controller may perform other functions . . . none of this functionality relates to 'calculat[ing], [using an effect simulator,] a time varying lighting value based on at least one simulation parameter' as required by the claims" and that any "encoding performed by the light system composer is done . . . prior to a user entering search criteria" and therefore cannot be a calculation based on user input. *Id.* at 47–48 (citing Ex. 2001 ¶¶ 50–51; Ex. 1005, 22:1–18). Patent Owner also contends that Hirichs and Pohlert do not disclose an

effect simulator adapted to calculate a time varying light value. *See id.*
at 50.

We agree with Patent Owner that Petitioner fails to establish Morgan
in view of Hinrichs and Pohlert suggests "calculate[ing] [using an effect
simulator,] a time varying lighting value based on at least one simulation
parameter," as claimed. Ex. 1001, 11:59–12:12. Specifically, Petitioner
does not direct us to anything in Morgan that is adapted to "calculate" at all,
much less adapted to calculate a time varying lighting value based on a
simulation parameter. Pet. 19–24. Petitioner alleges that Morgan's
disclosure of "'one or more of the library of lighting effects/shows' and 'one
or more (or all) functional aspects of a user interface and library searching
may be performed by a controller that also controls the lighting system that
generates the lighting effect(s)/show(s)'" satisfies the functionality of the
"effect simulator" of the '258 patent. Pet. 19 (citing Ex. 1005, 10:16–21;
Ex. 1003 ¶ 91–102). However, merely identifying a controller that *searches*
a library and *processes* pre-programmed lighting effects, falls short of
establishing sufficiently that Morgan's controller is adapted to "calculate."
And as Patent Owner aptly explains, the other functions performed by
Morgan's controller similarly do not "calculate"; nor are they adapted to
calculate. Prelim. Resp. 47–48 (referring to Figure 3 and identifying "steps
302 (query user for input information), 304 (search lighting effects/shows),
and 306 (provide user with indication of candidate lighting effects)").

Furthermore, we agree with Patent Owner that Petitioner does not
demonstrate that Morgan suggests an effect simulator adapted to calculate "a
time varying lighting value based on at least one simulation parameter," as
claimed. *Id.* at 48–49. Petitioner does not expressly identify where Morgan

describes calculating or anything adapted to calculate a time varying lighting value but, instead, directs our attention to Morgan's description of "generat[ing] the lighting effect using the executable lighting program" using "one or more characteristics of the lighting effect [that] include, but are not limited to, 'color content,' 'color resolution,' 'color distribution or color spatial frequency,' and/or 'at least one dynamic temporal characteristic' of the selected lighting effect." Pet. 20 (citing Ex. 1005, 3:45–67, 14:4–12, 32:15–22). But, as Patent Owner explains, this portion of Morgan "describes the various attributes a user may employ to *search* the prepackaged executable lighting effects," which a person of ordinary skill in the art would not have understood to include calculating, or adapted to calculate, "a time varying lighting value." Prelim. Resp. 48–49 (emphasis in original) (citing Ex. 2001 ¶ 52).

Finally, Petitioner's contentions regarding Hinrichs and Pohlert do not remedy the deficiencies of Morgan. Although Petitioner alleges that "Hinrichs teaches that its subject lighting system controller provides outputs based on 'effect functions,'" and that "the controlling means . . . execute[s] [effect functions] in relation to time and in relation to each other," Petitioner does not direct our attention to anything in Hinrichs that describes calculating or anything adapted to calculate a time varying lighting value. Pet. 20–22.

Similarly, Petitioner fails to identify how Pohlert discloses an effect simulator adapted to calculate a time varying light value. Pet. 22–24. That Pohlert teaches that its "processes may be carried out by a power controller that 'includes a processor 1074 which may be programmed to provide various lighting effects—the effects generator—by 'control[ling] the switch

selector [through] setting various digital values'" and that "[t]he programming instructions may provide that the switches 1062 are turned on and off according to designated sequences, thus allowing the capability of pattern generation via the processor 1074," fails to sufficiently establish this limitation. Pet. 23–24 (citation omitted) (alterations in original). Further, as Patent Owner aptly explains, a strobing effect oscillating signals generate "is not 'time varying', but rather repetitive." Prelim. Resp. 50 (citing Ex. 2001 ¶ 61).

In view of the foregoing, we determine that Petitioner fails to demonstrate on this record a reasonable likelihood that the subject matter of claim 1 of the '258 patent would have been obvious over the combined disclosures of Morgan, Hinrichs, and Pohlert.

5. *Remaining Claims*

Petitioner presents no arguments or evidence with respect to claims 2–22 that would remedy the defects noted above with respect to independent claim 1. Thus, Petitioner does not demonstrate a likelihood that the subject matter of claims 2–22 would have been obvious over the combined disclosures of Morgan, Hinrichs, and Pohlert.

E. *Discretion to Deny Institution under 35 U.S.C. § 325(d)*

Petitioner and Patent Owner both address 35 U.S.C. § 325(d). Pet. 6–7; Prelim. Resp. 26. Because we deny the Petition on the merits, we do not address the arguments about discretion to deny institution.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner does not demonstrate a reasonable likelihood that it would prevail with respect to at

least one of the claims challenged in the Petition. Accordingly, we deny the Petition and do not institute an *inter partes* review of the '258 patent.

IV. ORDER

It is ORDERED that the Petition is *denied* as to all challenged claims of the '258 patent and no trial is instituted.

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