AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court EASTERN DISTRICT OF TEXAS on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
4:23-cv-00508	6/12/2023	EASTERN DISTRICT OF TEXAS

PLAINTIFF	DEFENDANT
Rotolight Limited	Aputure Imaging Industries, Co.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,197,257	2/5/2019	Rotolight Limited
2	10,197,258	2/5/2019	Rotolight Limited
3	10,845,044	11/24/2020	Rotolight Limited
4	10,203,101	2/12/2019	Rotolight Limited
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Print Save As... Reset

Trials@uspto.gov
571-272-7822

Paper 9
Date: January 25, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIDENDUM PRODUCTION SOLUTIONS, INC.,
Petitioner,

v.

ROTOLIGHT LIMITED,
Patent Owner.

IPR2023-01218
Patent 10,845,044 B2

Before GRACE KARAFFA OBERMANN, JEFFREY W. ABRAHAM, and KIMBERLY McGRAW, *Administrative Patent Judges.*

Opinion for the Board filed by OBERMANN, *Administrative Patent Judge*.
Opinion Dissenting filed by McGRAW, *Administrative Patent Judge*.

OBERMANN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

Videndum Production Solutions, Inc. ("Petitioner") filed a petition for an *inter partes* review (Paper 1, "Pet.") challenging claims 1–19 of U.S. Patent No. 10,845,044 B2 (Ex. 1001, "the '044 patent"). Rotolight Limited ("Patent Owner") filed a Preliminary Response. Paper 6, "Prelim. Resp." After receiving authorization from the Board, Petitioner filed a Reply to the Preliminary Response (Paper 6) and Patent Owner filed a Sur-reply (Paper 7).

We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). For the reasons set forth below, we do not institute an *inter partes* review of the challenged claims.

A. Real Parties-in-Interest

Petitioner identifies itself and Videndum PLC as real parties-in-interest. Pet. 63. Patent Owner identifies itself and Rotolight Group Ltd. as real parties-in-interest. Paper 4, 1.

B. Related Proceedings

The parties identify *Rotolight Limited v. Videndum PLC and Videndum Product Solutions, Inc.*, Case No. 22-928-MN-JLH (D. Del.) ("the District Court action"), in which Patent Owner has asserted infringement of the '044 patent against Petitioner. Pet. 63; Paper 4, 1. Patent Owner identifies three additional district court actions. Paper 4, 2 (listing those actions).

The parties indicate that Arnold & Richter Cine Technik GmbH & Co. Betriebs KG (referred to by the parties as "ARRI") previously filed an *inter partes* review against the same claims of the '044 patent in IPR2022-00099

("IPR099"). Pet. 63; Paper 4, 2. Patent Owner identifies seven additional *inter partes* reviews. *See* Paper 4, 1–2 (listing those proceedings).

C. The '044 Patent (Ex. 1001)

The '044 patent, titled "Lighting System and Control Thereof," issued on November 24, 2020. Ex. 1001, codes (45), (54). The '044 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." *Id.* at 1:14–17. According to the specification of the '044 patent, a typical "lighting controller called a 'flicker box'" may be "used to produce flickering lighting effects to mimic flickering light for example from a fire place, candle, electrical spark or lightning." *Id.* at 1:18–23.

But flicker boxes are "complex, costly and time consuming" to set up and undesirably require "a physical wired connection to the 'hot' light source desired to be controlled." *Id.* at 1:27–32. Flicker boxes also are "incompatible with LED light sources" and "require the use of 'hot' incandescent light sources which are energy inefficient and also pose health and safety risks to those working on set." *Id.* at 1:35–40.

The '044 patent purports to address those disadvantages and describes methods and devices "for controlling a lighting device to produce user customizable lighting effect," for example, by "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 1:45–58. Figure 2 reproduced below, illustrates that solution.

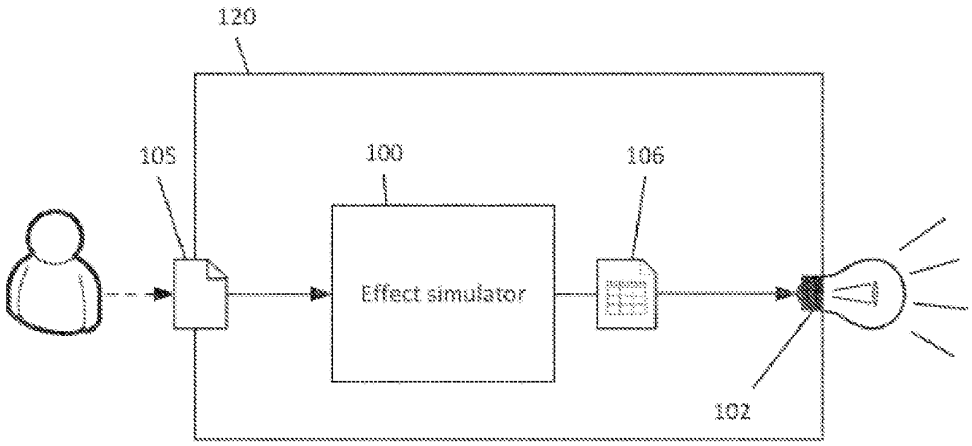


Figure 2

Figure 2 "is a schematic diagram of a further lighting system." *Id.* at 5:22. 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 5:54–6:8. For 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 5:56–57, 5:61–63. The '044 patent explains that "[t]his arrangement does not require the DMX [Digital Multiplex] distribution hub **302**, power elements **304**, **306**" required in a flicker box lighting system. *Id.* at 5:57–60.

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

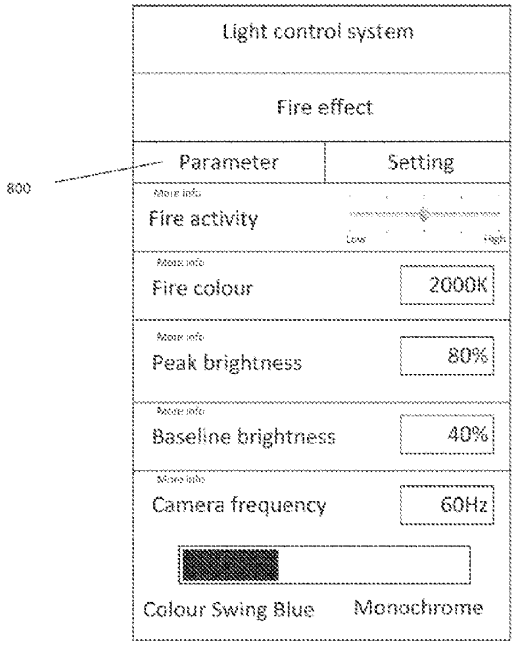


Figure 6

Figure 6 "is a graphic user interface [800] for user input of simulation parameters." *Id.* at 5:28–29. According to Figure 6, the simulated effect is a fire effect. *Id.* at 8:5–7. 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.* at 8:8–12.

D. Illustrative Claim

Petitioner challenges claims 1–19 of the '044 patent, with claims 1, 12, and 19 being the independent claims. Claim 1, reproduced below, is representative of the challenged claims.

> 1. A method for controlling a lighting device to produce a range of different user customisable lighting effects, the method comprising:

receiving user input of at least one user input simulation parameter to customise a lighting effect;

storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;

recalling from said memory said at least one stored user input simulation parameter;

calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and

outputting to said lighting device said time varying lighting value thereby to simulate the lighting effect.

Ex. 1001, 11:54–12:3.

E. The Asserted Unpatentability Challenges

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–19	102[1]	Astera[2]
1–19	103	Astera
1–19	102	Edwards[3]
1–19	103	Edwards

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Given that the application from which the '044 patent issued was filed after this date (Ex. 1001, code (22)), the current versions of §§ 102 and 103 apply.

[2] Astera LED Technology GmbH, AX10 SPOTMAX™ User Manual, dated May 7, 2015 (Ex. 1004, "Astera"), which Petitioner alleges to have a publication date of June 2015. *See* Pet. 6–7 (Petitioner's information pertaining to earliest publication date).

[3] Charles Edwards, US 9,743,010 B1, issued August 22, 2017 (Ex. 1006, "Edwards").

Pet. 3. The Petition is supported by the declaration testimony of Mr. Woody Smith (Ex. 1003) and Mr. Simon Canins (Ex. 1005). The Preliminary Response is supported by the declaration testimony of Dr. Eric Bretschneider (Ex. 2002).

II. WHETHER TO INSTITUTE AN *INTER PARTES* REVIEW

Patent Owner requests a discretionary denial of institution under 35 U.S.C. § 314 based on the earlier petition filed by ARRI in IPR099. Prelim. Resp. 12–25 (citing *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16 (PTAB Sept. 6, 2017) (precedential as to § II.B.4.i)). Petitioner counters that discretionary denial is not appropriate on this record. Pet. 61–62; Reply 1–3.

A. Background

On October 25, 2021, ARRI filed its petition in IPR099 against claims 1–19 of the '044 patent. Ex. 2004. On May 12, 2022, the Board instituted review in IPR099 based on ARRI's petition. Ex. 1007. Three months later, on July 12, 2022, Patent Owner filed the complaint in the District Court action against Petitioner for infringement of claims 1–19 of the '044 patent. Ex. 2001, 1. On January 9, 2023, after completion of discovery and the filing of all trial briefs in IPR099, the Board entered a hearing order that scheduled final arguments for February 13, 2023. *See* IPR099, Paper 35 (hearing order).

On January 13, 2023, six months after Petitioner was sued by Patent Owner in the District Court action, ARRI and Patent Owner jointly moved to terminate their dispute in IPR099 based on settlement. IPR099, Paper 37. The next day, on January 14, 2023, Petitioner sent an email to the Board requesting denial of the parties' joint motion to terminate IPR099.

Ex. 1010.[4] In that email, Petitioner maintained that termination was against Petitioner's interests because Petitioner, at that time, was defending against Patent Owner's claims of infringement of the '044 patent in the District Court action. *Id.* at 1–2.

On January 30, 2023, the Board issued an order that terminated IPR099 (before a final written decision issued) based on the settlement between ARRI and Patent Owner. Ex. 1011. In that order, the Board expressly addressed Petitioner's objections to termination (*id.* at 3–7), observing that the Board was "first made aware of [Petitioner's] asserted interests" in IPR099 in the email dated January 14, 2023, "with no prior attempt by that non-party to otherwise be involved in" IPR099 (*id.* at 6). The Board observed that Petitioner's email did not explain why Petitioner "could not have filed" a "copycat" petition in IPR099 "to serve as a back-up or understudy petitioner in the event of a settlement between the parties." *Id.* The Board further observed that, in the email, Petitioner "indicates that it is not time-barred and may file its own" petition against claims of the '044 patent "in the future." *Id.* at 7. Against that backdrop, the Board terminated IPR099, reasoning that Petitioner's "asserted interests as a non-party" did not "outweigh the substantial interests of the actual participants in" that proceeding. *Id.* at 6–7.

On July 17, 2023, about six months after the Board terminated the proceeding in IPR099 and a few days shy of the one-year anniversary of the date on which Petitioner was sued for infringement in the District Court action, Petitioner filed the instant Petition. *See* Pet. The Petition advances

[4] Petitioner changed its name from "The Vitec Group PLC" to "Videndum Production Solutions, Inc." in May 2022. Prelim. Resp. 13 (citing Ex. 2003).

the same challenges based on the same prior art references against the same patent claims as ARRI's petition in IPR099. *Compare id.* at 3 (grounds chart), *with* Ex. Ex. 2004, 4 (grounds chart).

B. General Plastic Factors

The Board's decision in *General Plastic* articulates a non-exhaustive list of factors that we consider in evaluating whether to exercise discretion, under 35 U.S.C. § 314(a), to deny a petition that challenges a patent that was previously challenged before the Board. These factors are:

1. whether the same petitioner previously filed a petition directed to the same claims of the same patent;
2. whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it;
3. whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition;
4. the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition;
5. whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent;
6. the finite resources of the Board; and
7. the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review.

General Plastic, Paper 19 at 9–10.

C. Assessment of the Factors

1. Factor One

Under the first *General Plastic* factor, we consider "whether the same petitioner previously filed a petition directed to the same claims of the same patent." *General Plastic*, Paper 19 at 16. The parties agree that this is the first petition that Petitioner has filed against claims of the '044 patent. Prelim. Resp. 16; Reply 1. The parties disagree, however, about whether this first factor nonetheless favors a discretionary denial of institution because a "significant relationship" exists between Petitioner and ARRI. Prelim. Resp. 16–17 (quoting *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 at 9–10 (PTAB Apr. 2, 2019) (precedential)); Reply 1.

On that point, we take note that "our application of the *General Plastic* factors is not limited solely to instances when multiple petitions are filed by the same petitioner." *Valve*, Paper 11 at 9. "[W]hen different petitioners challenge the same patent, we consider any relationship between those petitioners when weighing the *General Plastic* factors." *Id.*

Patent Owner argues that Petitioner's use of the earlier-filed petition in IPR099 "as a roadmap for its own petition ties the interests of" Petitioner and ARRI together such that the first *General Plastic* factor supports denial of institution. Prelim. Resp. 17 (quoting *Ericsson Inc. v. Uniloc 2017, LLC*, IPR2019-01550, Paper 8 at 11–12 (PTAB Mar. 17, 2020) ("*Ericsson I*")). Aside from the facts surrounding Petitioner's alleged copying of ARRI's petition in IPR099, Patent Owner directs us to no other evidence of a relationship between Petitioner and ARRI, except to indicate that both entities were sued by Patent Owner for infringement of the '044 patent and both were "industry participants." Prelim. Resp. 17.

Petitioner responds that ARRI is its direct competitor and, further, that ARRI and Petitioner were "separately sued based on different products, and did not collaborate on" any *inter partes* review proceedings. Reply 1–2.

We do not read the *Valve* decision as supporting Patent Owner's view that Petitioner's reliance on ARRI's earlier-filed petition in IPR099, even "as a menu and roadmap," is sufficient to create "a significant relationship" that favors denial under the first *General Plastic* factor. *See Ericsson Inc. v. Uniloc 2017 LLC*, IPR2020-00420, Paper 7 at 9 (PTAB June 18, 2020) ("*Ericsson II*"). To the extent the Board held otherwise in *Ericsson I*, "we are not bound" because that decision "is not precedential authority." *Ericsson II*, Paper 7 at 9 (addressing *Ericsson I*). Petitioner's decision to review ARRI's petition in IPR099 "and even agreeing with and liking the analysis in the earlier petition does not create a significant relationship between the two petitioners." *Ericsson II*, Paper at 10.

On this record, we agree with Petitioner that the first *General Plastic* factor weighs in favor of institution. We also agree that the lack of a significant relationship between first and second petitioners can diminish the relevance of the other *General Plastic* factors. *See* Reply 1 (Petitioner's argument on that point). As explained below, however, similar to the panel in *Ericsson II*, we find that is not the case here. *See Ericsson II*, Paper 7 at 7–16 (denying institution after weighing all seven *General Plastic* factors, notwithstanding that no significant relationship was shown to exist between the first and second petitioners and the first factor favored institution).

2. Factor Two

Under the second *General Plastic* factor, we consider "whether at the time of filing of the first petition the petitioner knew of the prior art asserted

in the second petition or should have known of it." *General Plastic*, Paper 19 at 16. At its core, this factor goes to whether the same petitioner could have and, therefore, should have asserted, in a first petition, prior art newly-asserted later in a second petition. *Id.* The instant case, by contrast, does not involve the same petitioner that filed the first and second petitions. Accordingly, we determine that the second *General Plastic* factor is inapplicable to the circumstances at hand and, therefore, is neutral.[5]

3. Factor Three

The third *General Plastic* factor focuses on "whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition." *General Plastic*, Paper 19 at 16. This factor supports denial because Petitioner filed the instant Petition about six months after the full trial record essentially was complete in IPR099. The only outstanding tasks were presentation of final oral arguments and issuance of a final written decision. *See supra* 7–9 (timeline).

Petitioner accessed the trial record in IPR099 at least six months prior to filing the instant Petition. *See* Ex. 1010 (email dated January 14, 2023). The record suggests, moreover, that Petitioner kept abreast in real-time of the papers filed in IPR099. *See id.* (Petitioner's email to the Board, dated ***January 14, 2023***, attempting to dissuade the Board from terminating IPR099 pursuant to a joint request for termination filed one day earlier, on

[5] We below address, in connection with the fourth factor, the length of time that elapsed between when Petitioner knew of the prior art asserted in the Petition and the filing date of the Petition (at least sixteen months).

January 13, 2023). We find nothing innately improper or unfair about that practice. To the contrary, monitoring the developments in an instituted *inter partes* review seems reasonable and prudent where, as here, the proceeding was brought by a direct competitor sued by the same Patent Owner for infringement of the same patent claims on which Petitioner had been sued in the District Court action.

But that does not end the inquiry. As Patent Owner correctly points out, this third *General Plastic* factor concerns whether a second petitioner files a "sequential" or time-staggered attack "against the same claims, with the opportunity to morph positions along the way" by reviewing information filed in the first proceeding, which inherently "imposes inequities on Patent Owner." Prelim. Resp. 20 (quoting *General Plastic*, Paper 19 at 11 ("[t]his is inequitable to Patent Owner and the very type of conduct that factor 3 seeks to protect against")).

It is the "***opportunity*** to morph positions along the way" that favors denying a second petition that is time-staggered relative to a first petition. *General Plastic*, Paper 19 at 9 n.13, 11 (Board's emphasis). Petitioner had more than a mere opportunity to morph its positions. It is beyond dispute that Petitioner, in fact, accessed the trial record in IPR099 at least six months prior to filing the instant Petition. Ex. 1010 (Petitioner's email dated January 14, 2023). Further, Petitioner leaves uncontested on this record Patent Owner's assertion and evidence that Petitioner "bolstered arguments" in the Petition based on review of the trial record developed in IPR099. Prelim. Resp. 19–20 (identifying persuasive examples); *see* Reply 1–3 (declining to contest Patent Owner's arguments or evidence on that point).

For the above reasons, we find the third *General Plastic* factor weighs in favor of denying institution.

4. Factors Four and Five

Under the fourth and fifth *General Plastic* factors, we consider "the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition" and "whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent." *General Plastic*, Paper 19 at 16.

Petitioner had knowledge of the asserted prior art, namely, Astera and Edwards, no later than February 25, 2022, when Patent Owner identified IPR099 as a related matter in both IPR2022-00261 ("IPR261") and IPR2022-00262 ("IPR262"), which were filed by Petitioner. Prelim. Resp. 13; IPR261, Paper 5 at 1; IPR262, Paper 6 at 1. Patent Owner filed its complaint against Petitioner in the District Court action on July 12, 2022, and Petitioner filed the instant Petition on July 17, 2023, which appears on this record to fall just under the statutory-bar deadline.[6]

On this record, Petitioner's direct interest in invalidating claims 1–19 of the '044 patent matured on July 12, 2022, the day it was sued for infringement of those claims in the District Court action. Ex. 2001. During the next six months, Petitioner, well within its rights, declined to file a copycat petition to join IPR099 "as a back-up or understudy" in the event ARRI settled its dispute with Patent Owner. Ex. 1011, 6. Instead, during that

[6] Patent Owner argues that "Petitioner waited until nearly the very last day, July 17, 2023, to file the current petition before it became time-barred under 35 U.S.C. § 315(b)." Prelim. Resp. 21.

period, it appears Petitioner was content to monitor the activity in IPR099. *See* Ex. 1010 (email demonstrating Petitioner's real-time monitoring of the developments in IPR099). We emphasize again that Petitioner was under no obligation to join IPR099 or file its own petition at any particular time. Nevertheless, under binding precedent, Petitioner bears the burden of explaining the length of its delay in filing a time-staggered second petition against the same patent claims challenged in IPR099, with a level of detail that is adequate in view of the particular and unique facts and circumstances presented on this record. *General Plastic*, Paper 19 at 16.

We determine that Petitioner's explanation for the delay between the filing of the complaint in the District Court action and the filing of the instant Petition is not sufficient under the particular and unique facts presented on this record. Petitioner devotes a single sentence to this issue, stating only that the delay was "reasonable" because Petitioner had to "find a new expert, coordinate with third parties (one residing overseas), and finalize declarations." Reply 3.

That explanation ignores that Petitioner had access to every trial brief filed in IPR099 for a full six months prior to filing its Petition. Furthermore, Petitioner's explanation ignores that the instant Petition is based on the same prior art, the same invalidity challenges, and the same patent claims as the first petition filed by ARRI in IPR099—a circumstance that significantly undercuts the conclusory assertion that a delay of nearly 12 months was reasonable because Petitioner had to find a new expert, deal with an overseas non-party, and finalize declarations. *Id.*

Petitioner fails to explain adequately why preparing the instant Petition was so time consuming, considering the Board instituted an *inter*

partes review in IPR099 on the same prior art and challenges. *Id.* (Petitioner's argument that the decision to institute in IPR099 demonstrates that the Board has "already found a likelihood that the" instant Petition is sufficient to support institution (citing Ex. 1007, 25)). The clear implication is that the nearly 12-month-long delay, including a six-month period during which Petitioner had access to an essentially complete trial record in IPR099, was necessary to allow Petitioner time to craft "bolstered arguments" in the instant Petition relative to the IPR099 petition. Prelim. Resp. 19; *see* Reply 1–3 (declining to contest Patent Owner's argument and evidence that Petitioner "bolstered arguments" in the instant Petition based on review of the record in IPR099).

To be clear, we do not hold that any particular length of delay is always unreasonable between time-staggered, serial petitions filed by different petitioners against the same patent claims. To the contrary, we assess the reasonableness of the delay in this case by considering the particular and unique set of ***uncontested*** facts presented on this record, including: (1) Petitioner kept abreast of the developments in IPR099 in real-time, as evidenced by Petitioner's email to the Board, submitted *one day* after the parties filed a motion to terminate in IPR099 (Ex. 1010); (2) the record in the first proceeding was essentially complete six months before Petitioner filed the instant Petition; (3) the instant Petition asserts the same challenges against the same patent claims based on the same prior art as the petition in IPR099; (4) Petitioner was aware of the asserted art at least sixteen months before it filed the Petition; (5) Petitioner bolstered arguments in the Petition in view of the trial record developed in IPR099; and (6) after Patent Owner filed suit against Petitioner in the District Court action,

Petitioner waited nearly one year to file the Petition, just a few days shy of the last day before the Section 315(b) time bar would set in. Prelim. Resp. 12–25 (asserting those facts); Reply 1–3 (declining to contest those facts); *see* Pet. 62 (declining to address any *General Plastic* factor, much less attempting to explain the delay).

When considered in light of those uncontested facts, we find insufficient Petitioner's single cursory sentence directed toward explaining the delay, which refers to finding a new expert, coordinating with an overseas non-party, and finalizing declarations. Reply 3. On this record, the fourth and fifth *General Plastic* factors weigh in favor of denying institution.

5. Factors Six and Seven

Under the sixth and seventh *General Plastic* factors, we consider "the finite resources of the Board" and "the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review." *General Plastic*, Paper 19 at 16. The sixth and seventh factors are efficiency considerations. *See id.* at 16–17; *see also* Consolidated Trial Practice Guide 56 (Nov. 2019) ("CTPG"), https://go.usa.gov/xpvPF (citing *General Plastic*, Paper 19 at 15) (noting that the Director's discretion under § 314(a) is informed by 35 U.S.C. § 316(b), which requires "the efficient administration of the Office, and the ability of the Office to timely complete proceedings instituted under this chapter").

We determine that the sixth and seventh *General Plastic* factors weigh against institution. In general, having multiple petitions challenging the same patent, especially when not filed at or around the same time as in this case, is inefficient and tends to waste resources. On that point, we are not persuaded

by Petitioner's argument that these factors favor institution because, in IPR099, "the Board already found a likelihood that the '044 patent may be invalid on the same grounds [asserted] in the Instant Petition." Reply 3.

Specifically, that argument fails to addresses concerns of efficiency and wasted resources at the Board. At the time the parties to IPR099 filed their motion to terminate based on settlement, the trial was nearly complete as the matter had been fully briefed and the time for the final hearing had already been set. All that remained was for the parties to present final arguments and the Board to issue its final written decision. A decision instituting an *inter partes* review on the instant Petition would require us to start another proceeding, on the same grounds raised in IPR099, from the very beginning, thus duplicating much of the Board's and Patent Owner's efforts exerted in that proceeding.

We determine that the sixth and seventh *General Plastic* factors weigh in favor of denying institution.

D. Summary

The evidence of record shows that factor 1 favors institution, factor 2 is neutral, and factors 3–7 favor denial of institution. Although no single factor is dispositive, the evidence and circumstances as a whole weigh in favor of denying institution in this case. As a result, we determine that it is appropriate to exercise our discretion under § 314(a) to deny institution.

III. CONCLUSION

For the forgoing reasons, we exercise our discretion under § 314(a) to deny institution of an *inter partes* review.

IV. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314, the Petition is denied, and no *inter partes* review is instituted.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 20 of 1082

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIDENDUM PRODUCTION SOLUTIONS, INC.,
Petitioner,

v.

ROTOLIGHT LIMITED,
Patent Owner.

IPR2023-01218
Patent 10,845,044 B2

McGRAW, *Administrative Patent Judge, Dissenting*.

I. INTRODUCTION

I dissent respectfully from the panel majority's decision ("majority decision"[7]) that we should exercise discretion to institution under 35 U.S.C. § 314(a). I believe the majority decision, when weighing certain of the *General Plastic* factors[8] and determining to deny institution, fails to sufficiently take into account certain facts including:

1) the present Petitioner is not the petitioner, nor a real party in interest or privy of the petitioner (i.e., Arnold & Richter Cine Technik GmbH & Co. Betriebs KG ("ARRI")) that filed the earlier petition in IPR2022-00099 ("IPR099");
2) the present Petitioner and ARRI do not have a significant relationship with each other;
3) Patent Owner sued the present Petitioner for infringement of the '044 patent *after* the decision to institute was issued in IPR099;
4) Patent Owner settled the IPR099 proceeding with ARRI and the Board terminated the proceeding without issuing a final written decision;
5) Petitioner requested the Board to not terminate IPR099 stating Patent Owner was attempting "to dismiss these proceedings at the eleventh-hour knowing that its patents are at substantial risk of invalidation" (Ex. 1010, 1);
6) when terminating IPR099, the Board expressly stated the fact that VPS indicates that it "is not time-barred and may file its own petitions in the future" leaves "open the ultimate patentability issues implicated in these cases"; and
7) the present Petitioner filed its Petition within the one-year statutory bar set forth in 35 U.S.C. § 315(b).

---

[7] This dissent assumes the reader is familiar with the facts set forth in the majority decision.

[8] The *General Plastic* factors are set forth in *General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, Case, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (precedential as to § II.B.4.i).

For the reasons set forth below, I would address the *General Plastic* factors as follows and grant institution.

A. Factor 1:

Factor 1 considers "whether the same petitioner filed a petition directed to the same claims of the same patent." *General Plastic,* Paper 19 at 9; *see also Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, -00063, -00084 Paper 11 at 2, 10 (PTAB Apr. 2, 2019) (weighing *General Plastic* factor 1 in favor of denying institution when there is a "significant relationship" between the first and second petitioners).

As correctly noted by the majority decision, this is the first petition filed by Petitioner against the claims of the '044 patent. Petitioner is not a real party in interest or in privy with ARRI, the petitioner of the IPR099 proceeding. Additionally, no significant relationship has been shown to exist between Petitioner and ARRI. On this record, factor one weighs strongly in favor of institution.

B. Factor 2:

Factor 2 asks "whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known of it." *General Plastic,* Paper 19 at 16. Patent Owner asserts that factor 2 weighs in favor of denying institution because "Petitioner was aware of the petition filed by ARRI on the '044 patent [in IPR099] and Petitioner relies on the same art as in the ARRI petition." Prelim Resp. 17. However, factor 2 is less relevant in the overall *General Plastic* analysis when the later petitioner is not the first petitioner, nor is a real party in interest, in privy, or significantly related to the first petitioner. *See, e.g., Qualcomm Inc. v. Monterey Research, LLC*, IPR2020-01493, Paper 11 at 17 (PTAB Mar. 8,

2021); *Unified Patents*, IPR2018- 00548, Paper 7 at 7–8. IPR2021-01577, 20–21.

The evidence presented does not show that Petitioner was aware of the asserted art as of October 25, 2021, the date ARRI filed its petition in IPR099 challenging the '044 patent, let alone show that Petitioner was aware of the relevance of the '044 patent to Petitioner's products or the art's relevance to the challenged claims of the '044 patent.[9] I agree with the majority that the second *General Plastic* factor is inapplicable to the circumstances at hand and, accordingly, is neutral.

[9] Patent Owner does not assert that Petitioner was aware of the asserted art as of October 25, 2021, the date ARRI filed its petition in IPR099 challenging the '044 patent. Rather, Patent Owner asserts Petitioner was aware of the asserted art when Petitioner filed "their first petitions on December 3, 2021" challenging related patents because the IPR099 proceeding "was pending at the time." Prelim. Resp. 17–18; *see also id.* at 18 (stating "[t]here is no question that Petitioner knew of then pending IPR2022-00099 petition and its asserted references" because "Petitioner noticed the ARRI IPRs in the Mandatory Notices sections of their first petitions") (citing IPR2022-00262, Paper 1 at 1). However, as admitted by Patent Owner, IPR099 is not one of the "ARRI IPRs" cited in Petitioner's Mandatory Notice. Prelim. Resp. 18 ("Petitioner does not cite to the IPR2022-00099 proceeding itself"). Rather, Patent Owner asserts that the ARRI proceedings identified by Petitioner "refer to the same prior art." *Id.* Patent Owner also cites to Petitioner's email to the Board requesting the Board not terminate, *inter alia,* the IPR099 proceeding following Patent Owner's settlement with ARRI as evidence that Petitioner "was monitoring cases against ARRI and the IPRs challenging the asserted patents." *Id.* (citing Ex. 1010). However, this email is dated January 14, 2023 and does not establish that Petitioner was aware of the asserted art when ARRI filed its petition in IPR099.

C. Factor 3:

Factor 3 asks "whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition." *General Plastic,* Paper 19 at 9. The majority correctly points out that this third *General Plastic* factor concerns whether a second petitioner files a "sequential" or time-staggered attack "against the same claims, with the opportunity to morph positions along the way" by reviewing information filed in the first proceeding, which inherently imposes inequities on Patent Owner. *See, e.g.*, *Code2000 UAB v. Bright Data Ltd.,* IPR2022-00861, -00862, Paper 18 at 5 (PTAB Aug. 23, 2022) (precedential) (citing *General Plastic*, Paper 19 at 17 and explaining that the absence of any restrictions on follow-on petitions would allow petitioners the opportunity to strategically stage their prior art and arguments in multiple petitions, using our decisions as a "roadmap," until a ground is found that results in the grant of review). The majority finds that factor 3 supports denial because it is undisputed that the instant Petition, filed about six months after the full trial record was essentially complete in IPR099, contains "bolstered arguments" that are based on review of the IPR099 trial record.

I agree that IPR proceedings "are not to be used as tools for harassment or a means to prevent market entry through repeated litigation and administrative attacks on the validity of a patent. Doing so would frustrate the purpose of the section as providing quick and cost effective alternatives to litigation." *General Plastic*, 17 (quoting H.R. Rep. No. 112-98, pt. 1, at 48 (2011)). I disagree, however, that factor 3 supports denial of

institution under the present circumstances. Here, Patent Owner chose to file its complaint for patent infringement against Petitioner in July 2022, two months after the Board's May 2022 Decision on Institution in IPR099. Patent Owner cannot complain that Petitioner had an opportunity to study the filings in IPR099 when Patent Owner chose to wait nearly nine months after the petition was filed in IPR099, and two months after the Decision on Institution issued, before bringing suit against Petitioner. Thus, any inequities faced by the Patent Owner in the present circumstances is a result of Patent Owner's own doing. This fact mitigates against the valid concern of road mapping.

Moreover, the IPR099 proceeding was terminated following settlement by Patent Owner and APPI. Ex. 1011. Thus, the Board never issued a final written decision on the merits of the challenges presented in first filed IPR099 petition. Indeed, when the Board terminated IPR099 over Petitioner's objections (Ex. 1010), the Board expressly stated that "termination leaves open the ultimate patentability issues implicated in these cases" and pointed to Petitioner's representation that Petitioner "is not time-barred and may file its own petitions in the future." Ex. 1011, 6.

As such, the present circumstances do not present the kind of harassment that forces a Patent Owner to defend against patent challenges that were already deemed insufficient. Notably, the Director has stated that allowing a petitioner the opportunity to pursue a decision on the merits in a second-filed petition, when the first-filed petition was not evaluated on the merits, "best balances the desires to improve patent quality and patent-system efficiency against the potential for abuse of the review process by repeated attacks on patents." *Code2000,* Paper 18 at 4–5 (internal quotations

omitted). "Holding otherwise would undercut the congressional grant to the United States Patent and Trademark Office of 'significant power to revisit and revise earlier patent grants" as a mechanism "to improve patent quality and restore confidence in the presumption of validity that comes with issued patents.'" *Id.* at 5 (quoting *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 272 (2016) (quoting H.R. Rep. No. 112-98, pt. 1, at 45, 48)).

Moreover, it appears that the present Petition presents the same evidence that Patent Owner would have had to face had it not chosen to settle its previous proceeding. *See* Prelim. Resp. 19–20 (identifying the "bolstered" material included in the present Petition that was not included in the earlier petition as material from the terminated proceeding). It would be unfair to Patent Owner infringement defendants for Patent Owner to inoculate itself from facing meritorious challenges to its patent simply by settling an earlier proceeding.

Thus, for the foregoing reasons, I would weigh factor 3 as supporting institution.

D. Factors 4 and 5

Factor 4 addresses "the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition." Factor 5 addresses "whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent." *General Plastic*, Paper 19 at 9. The majority decision determines that the fourth and fifth *General Plastic* factors weigh in favor of denial.

I disagree that these factors favor denial. Rather, these factors are inapplicable to the circumstances at hand—where Petitioner filed its Petition

within one year of being sued by Patent Owner—and accordingly are neutral.

Although Petitioner was aware of the asserted prior art at least as early as February 25, 2022 (*see* Prelim. Resp. 13; IPR261 Paper 5 at 1; IPR262, Paper 6 at 1), Patent Owner did not sue Petitioner for infringement of the '044 patent until July 2022. Petitioner filed its first petition challenging the '044 patent on July 17, 2023, within the one-year statutory period expressly allowed by Congress under 35 U.S.C. § 315(b). *See* Pet. 63–64 (identifying the district court proceeding in which Patent Owner asserted infringement of the '044 patent against Petitioner and stating that Petitioner is not barred or estopped from requesting an IPR of the challenged claims).

In debating Section 315(b), Congress extended the period for filing the petition from six months to one year so as to afford accused infringers sufficient time to assess the patent owner's infringement allegations and to investigate the patent's validity. *See* 157 Cong. Rec. S5429 (daily ed. Sept. 8, 2011) (statement of S. Kyl) (explaining that the "final bill" extends the deadline for seeking *inter partes* review from six months to one year because, "in light of the present bill's enhanced estoppels, it is important that the section 315(b) deadline afford defendants a reasonable opportunity to identify and understand the patent claims that are relevant to the litigation"). That Congress chose one year over six months raises the presumption, then, that accused infringers are entitled to the full year permitted by statute for filing a petition without being hindered to explain why the petition was not filed earlier in the yearlong window. Indeed, many companies choose not to file a petition for *inter partes* review until they have been sued for patent infringement.

Accordingly, under the facts presented, factors 4 and 5 are inapplicable to the circumstances at hand and accordingly are neutral.

E. Factors 6 and 7:

Factor 6 addresses "the finite resources of the Board" and factor 7 addresses "the requirement under 35 U.S.C. § 316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review." I disagree with the majority that the sixth and seventh *General Plastic* factors weigh in favor of denying institution.

Although I agree that it is inefficient and wasteful for the Board to reconsider the same grounds that were raised in IPR099 and that doing so would require Patent Owner to duplicate its efforts exerted in that proceeding, IPR099 was filed by another petitioner and terminated before the Board issued a final written decision. Moreover, the previous proceeding was terminated following Patent Owner's request to terminate following settlement. In such circumstances, the Board's mission "to improve patent quality and restore confidence in the presumption of validity that comes with issued patents" and the fact that Petitioner filed its first petition challenging the '044 patent within one year of being sued, outweighs the impact on Board resources needed to reach a final evaluation of the merits of the asserted grounds. *See Code2000,* Paper 18 at 6 (stating "the Patent Owner's concerns of fairness are outweighed by the benefits to the patent system of improving patent quality by reviewing the merits of the challenges raised in the petitions, which have not been addressed to date"). As such, I would weigh factor 6 as supporting institution.

Regarding factor 7, there is nothing in the record that would prevent the panel from issuing a final determination within one year of institution. Thus, factor 7 also favors institution.

F. Reasonable Likelihood of Success

Patent Owner admits that the present Petition is a copy of the petition in IPR099—which was sufficient for institution in that proceeding—further bolstered with additional material copied from later filings in that proceeding. Prelim. Resp. 17. As such, it appears that the present petition, like the petition in IPR099, shows there is a reasonable likelihood that Petitioner would prevail with respect to at least one of the claims challenged in the Petition.

G. Summary

Based on the circumstances presented, I determine that, as a whole, the factors weigh against exercising discretion to deny institution of the Petition. Therefore, I would not exercise discretion to deny institution under § 314(a), and, respectfully, dissent.

FOR PETITIONER:

David Magee
Marc Vander Tuig
ARMSTRONG TEASDALE LLP
dmagee@atllp.com
mvandertuig@armstrongteasdale.com

FOR PATENT OWNER:

Bradley Liddle
Scott Breedlove
Michael Pomeroy
Lithaw Lim
CARTER ARNETT PLLC
bliddle@carterarnett.com
sbreedlove@carteramett.com
mpomeroy@carterarnett.com
hlim@carterarnett.com

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court EASTERN DISTRICT OF TEXAS on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
4:23-cv-00508	6/12/2023	EASTERN DISTRICT OF TEXAS

PLAINTIFF	DEFENDANT
Rotolight Limited	Aputure Imaging Industries, Co.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,197,257	2/5/2019	Rotolight Limited
2	10,197,258	2/5/2019	Rotolight Limited
3	10,845,044	11/24/2020	Rotolight Limited
4	10,203,101	2/12/2019	Rotolight Limited
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Print Save As... Reset

Trials@uspto.gov
Tel: 571-272-7822

Paper 39
Entered: January 30, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARNOLD & RICHTER CINE TECHNIK GMBH & CO. BETRIEBS KG,
Petitioner,

v.

ROTOLIGHT LIMITED,
Patent Owner.

IPR2021-01496 (Patent 10,197,257 B2)
IPR2021-01497 (Patent 10,197,258 B2)
IPR2021-01498 (Patent 10,203,101 B2)
IPR2022-00099 (Patent 10,845,044 B2)[1]

Before RAE LYNN P. GUEST, GRACE KARAFFA OBERMANN, and JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

TERMINATION
Due to Settlement After Institution of Trial
35 U.S.C. § 317(a); 37 C.F.R. § 42.74

Dismissing Joint Motion to Waive Oral Argument
37 C.F.R. § 42.5(a)

---

[1] This Order addresses issues common to all four proceedings, except that the Joint Motion to Waive Oral Argument was filed only in IPR2022-00099 (Paper 38). The proceedings themselves are not consolidated.

I. INTRODUCTION

On January 13, 2023, in each proceeding, Petitioner and Patent Owner filed a joint motion to terminate the *inter partes* review as a result of a settlement agreement that resolves all pending disputes between Petitioner and Patent Owner, and a joint request to treat the settlement agreement as business confidential information and to keep separate from the files of the involved patents, pursuant to 35 U.S.C. § 317(b) and 37 C.F.R. § 42.74(c). Papers 38, 34, 38, 36 (joint motions); Papers 39, 35, 39, 37 (joint requests).[2] That same day, they also filed a copy of their settlement agreement in each proceeding. Exs. 2016, 2016, 2016, 2020 (settlement agreements). The joint requests and settlement agreements were filed under seal as Board and Parties Only.

One day later, on January 14, 2023, the Board received an email from a non-party, Videndum Production Solutions, Inc. ("VPS"), alleging "that termination of these proceedings is not appropriate and contrary to the public interest." Ex. 3001, 3001, 3001, 3002.

---

[2] In this section, we refer sequentially to papers and exhibits filed in IPR2021-01496 ("IPR496"), IPR2021-01497 ("IPR497"), IPR2021-01498 ("IPR498"), and IPR2022-00099 ("IPR099"). In subsequent sections, we refer only to papers and exhibits filed in IPR496, unless otherwise noted. Similar papers and exhibits were filed in each proceeding, except that the Joint Motion to Waive Oral Argument was filed only in IPR099 (Paper 38). We exercise our discretion and enter the same order in each proceeding.

II. DISCUSSION

An *inter partes* review "shall be terminated with respect to any petitioner upon the joint request of the petitioner and patent owner, unless the Office has decided the merits of the proceeding before the request for termination is filed." 35 U.S.C. § 317(a) ("Section 317(a)") (Board's emphasis). As explained in our Consolidated Trial Practice Guide ("CTPG"), issued in November 2019,[3] "[t]he Board expects that a proceeding will terminate" as to settling parties "after the filing of a settlement agreement, unless the Board has already decided the merits of the proceeding." CTPG 86.

On December 13, 2022, the Board conducted a consolidated final hearing in IPR496, IPR497, and IPR498. *See* Paper 37 (transcript of consolidated hearing). A final hearing in IPR099 is set to occur on February 13, 2023. *See* IPR099, Paper 35 (hearing order). The Board has not entered a final decision on the merits in any of the four proceedings. Final written decisions are due in IPR496, IPR497, and IPR498 on March 16, 2023. In IPR099, the final written decision is due nearly two months later, on May 12, 2023.

VPS speculates that "there is a high likelihood that the Board has already decided the merits of the proceedings." Ex. 3001, 1. As VPS acknowledges, however, the final hearing in IPR099 has not yet occurred, and several weeks remain before the final written decisions are due in the

[3] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated.

other three cases. *Id.* Contrary to VPS's speculation, the Board has not "decided the merits" of the four proceedings pursuant to Section 317(a).

VPS directs us to three nonbinding prior decisions in which the Board denied a motion to terminate where the motion was filed after a final hearing and, in two cases, prior to entry of a final written decision, upon a showing that "termination is against public interest." *Id.* (citing Board decisions in *Rubicon Communications, LP, v. Lego A/S*, IPR2016-01187, Paper 100 (PTAB Dec. 14, 2017) ("*Rubicon*" or "IPR187"), *Apple Inc. v. Open TV, Inc.*, IPR2015-00969, Paper 29 (PTAB Sept. 10, 2016) ("*Apple*" or "IPR969"), and *Kinetic Technologies, Inc. v. Skyworks Solutions, Inc.*, IPR2014-00690, Paper 43 (PTAB Oct. 19, 2015) ("*Kinetic Technologies*" or "IPR690")). Those nonbinding Board decisions are not persuasive here in light of the particular facts and circumstances at hand.

For example, none of the decisions cited by VPS relates to a case family where, as here, one of the cases has yet to be argued in a final hearing. In *Rubicon*, the Board denied a motion to terminate that was filed "*very near* the conclusion of the proceeding," namely, "*less than one week* prior to the statutory due date to enter a final written decision." IPR187, Paper 100 at 2 (Board's emphasis). By contrast, the parties filed the instant motions to terminate with considerably more time remaining before the statutory due dates in all four proceedings and, moreover, well before the final hearing date set in IPR099. The due date for a final written decision in IPR099 is months away.

In *Apple*, as in *Rubicon*, the motions to terminate were "filed at an extremely late date in each proceeding," after "oral hearings were held in

each proceeding," and after "the panel deliberated and decided the merits of each proceeding." IPR969, Paper 29 at 4. Unlike in the instant case family, the Board in *Apple* was confronted with material questions of fact casting doubt on the sufficiency of the settlement agreements, which involved "signatories that [had] not been identified as real parties-in-interest." *Id.* Thus, the Board in *Apple* could not "know whether," or "rely on [the parties'] assurances that, these agreements in fact settle their disputes." *Id.* at 5. No similar questions of fact cast doubt on the sufficiency of the settlement agreements in these proceedings. Furthermore, the Board has not heard final arguments, deliberated, or even preliminarily decided the merits of the case in IPR099. The facts at play in the *Apple* decision are inapposite.

The decision in *Kinetics Technologies* does not tip the scales against terminating the proceedings based on settlement. That decision includes little analysis and involves a motion to terminate filed *after* the final hearing and *after* the Board "had substantially decided the merits of the proceeding." IPR690, Paper 43 at 20–21. There can be no meaningful dispute that the panel decided the merits of that case, prior to denying the motion for termination, where the denial of the motion was embedded within the final written decision. *Id.* No comparable facts support a denial of the motions for termination in the instant cases.

In a nutshell, we find that *Rubicon*, *Apple*, and *Kinetics Technologies* are not persuasive to support a denial of the instant motions for termination. A more recent Board decision demonstrates that the grant of a motion for termination, filed much later than those at issue here, may nonetheless be appropriate. *See Ascend Performance Materials Operations LLC, v.*

Samsung SDI Co., LTD, IPR2020-00349, Paper 64 (PTAB, March 3, 2022) ("*Ascend Performance*" or "IPR349"). There, even *after* entry of a final written decision, the Board granted the parties' joint motion to terminate the case prior to "rendering a new final written decision" on remand from the Director. IPR349, Paper 64 at 2–3, 5. Although the panel had "made progress toward issuing a new Final Written Decision on remand," termination was granted where the Board had "not 'decided the merits of the proceeding.'" *Id.* at 4. Neither have we decided the merits of any proceeding in this case family, although, as in *Ascend Performance*, "progress" has been made. *Id.*

We have considered VPS's other arguments, but none persuades us to deny the motions for termination. *See generally* Ex. 3001. For example, VPS acknowledges that only a subset of the four patents-at-issue "have been asserted against VPS in" a district court action. *Id.* at 1. VPS's further assertion that "other industry participants" are facing allegations of "infringement of the same patents" is vague and speculative. *Id.* On this record, although VPS may have some interest in the Board proceeding to final written decisions in the instant proceedings, we are not persuaded that termination is "contrary to" any broader "public interest." *Id.*

We were first made aware of VPS's asserted interests by an email received after the filing of the motions for termination, with no prior attempt by that non-party to otherwise be involved in the proceedings. *Id.* VPS does not explain why it could not have filed copy-cat petitions along with motions for joinder in one or all of the instant proceedings, to serve as a back-up or understudy petitioner in the event of a settlement between the parties. *Id.*

VPS also indicates that it is not time-barred and may file its own petitions in the future. *See id.* at 2 (VPS's assertion that it "may have to refile similar IPR petitions" if the Board terminates the instant cases). Those circumstances, taken together with the fact that termination leaves open the ultimate patentability issues implicated in these cases, persuade us that a grant of the instant motions for termination is appropriate.

Stated somewhat differently, VPS's asserted interests as a non-party do not, on this record, outweigh the substantial interests of the actual participants in these proceedings. The parties have reached settlements in a collection of four IPRs, together with a co-pending district court action, involving all four related patents. Paper 39, 2. We take notice that so comprehensive a settlement likely involves robust, time-consuming, and sensitive negotiations, which we hesitate to undermine. Against that backdrop, the late-asserted interests of VPS, a non-party, do not outweigh the "strong public policy reasons to favor settlement between the" actual parties who have participated in these proceedings from the onset. CTPG 86.

The content of the settlement agreements supports the parties' requests to treat the settlement agreements as business confidential information. Ex. 2016. The Joint Motion to Waive Oral Argument in IPR099 (Paper 38) is *dismissed* as moot.

III. CONCLUSION

For the above reasons, we determine that termination of the proceedings as to both Petitioner and Patent Owner is appropriate. Pursuant to Rule 42.74(c), we also grant the parties' requests to treat the settlement

agreements as business confidential information, and to keep those agreements separate from the files of the patents-at-issue. The Joint Motion to Waive Oral Argument in IPR099 is *dismissed* as moot.

IV. ORDER

It is

ORDERED that the joint motion to terminate each proceeding is *granted*;

FURTHER ORDERED that the settlement agreement in each proceeding shall be maintained as confidential business information and kept separate from the files of the challenged patent; and

FURTHER ORDERED that the Joint Motion to Waive Oral Argument in IPR2022-00099 is *dismissed* as moot.

IPR2021-01496 (Patent 10,197,257 B2)
IPR2021-01497 (Patent 10,197,258 B2)
IPR2021-01498 (Patent 10,203,101 B2)
IPR2022-00099 (Patent 10,845,004 B2)

FOR PETITIONER:

Joseph Raffetto
Celine Jimenez Crowson
Scott Hughes
HOGAN LOVELLS US LLP
joseph.raffetto@hoganlovells.com
celine.crowson@hoganlovells.com
scott.hughes@hoganlovells.com

FOR PATENT OWNER:

Alison McCarthy
Bryan J. Cannon
Andrew Zappia
TROUTMAN PEPPER HAMILTON SANDERS LLP
alison.mccarthy@troutman.com
bryan.cannon@troutman.com
andrew.zappia@troutman.com

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 41 of 1082

AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	7/27/2022	District of Delaware

PLAINTIFF	DEFENDANT
ROTOLIGHT LTD.	ARRI INC., ARNOLD & RICHTER CINE TECHNIK GMBH & CO. BETRIEBS KG, and STAHL BETEILGUNGS GMBH

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 10,197,257	2/5/2019	Rotolight Ltd.
2	US 10,197,258	2/5/2019	Rotolight Ltd.
3	US 10,203,101	2/12/2019	Rotolight Ltd.
4	US 10,845,044	11/24/2020	Rotolight Ltd.
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	7/12/2022	District of Delaware

PLAINTIFF	DEFENDANT
Rotolight Limited	Videndum PLC, Videndum Production Solutions, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,197,257 B2	5/5/2019	Rotolight Limited
2	10,197,258 B2	5/5/2019	Rotolight Limited
3	10,845,044 B2	11/24/2020	Rotolight Limited
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Print Save As... Reset

Trials@uspto.gov
571-272-7822

Paper 13
Date: May 12, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARNOLD & RICHTER CINE TECHNIK GMBH & CO. BETRIEBS KG,
Petitioner,

v.

ROTOLIGHT LIMITED,
Patent Owner.

IPR2022-00099
Patent 10,845,044 B2

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

ROSS, *Administrative Patent Judge.*

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

I. INTRODUCTION

Arnold & Richter Cine Technik GmbH & Co. Betriebs KG ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting an *inter partes* review of claims 1–19 of U.S. Patent No. 10,845,044 B2 (Ex. 1001, "the '044 patent"). Rotolight Limited ("Patent Owner") filed a Preliminary Response to the Petition. Paper 8, "Prelim. Resp." With authorization, Petitioner filed a Reply to Patent Owner's Preliminary Response (Paper 10, "Reply") and Patent Owner filed a Sur-reply (Paper 11, "Sur-reply").

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, Preliminary Response, Reply, Sur-reply, as well as arguments and evidence presented therein, we determine that Petitioner has established a reasonable likelihood of prevailing with respect to at least one challenged claim. Accordingly, we grant the Petition, and institute an *inter partes* review.

A. Real Parties-in-Interest

Petitioner states that "[t]he real party-in-interest in this proceeding is Arnold & Richter Cine Technik GmbH & Co. Betriebs KG." Pet. 2. Patent Owner identifies Rotolight Limited and Rotolight Group Ltd. as a 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 (IPR2021-01496), 10,197,258 (IPR2021-01497), and 10,203,101 (IPR2021-01498) as related matters. Pet. 2; Paper 4, 1–2.

C. The '044 Patent

The '044 patent, titled "Lighting System and Control Thereof," issued on November 24, 2020. Ex. 1001, codes (45), (54). The '044 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." *Id.* at 1:14–17.

According to the '044 patent, a typical "lighting controller called a 'flicker box' . . . is used to produce flickering lighting effects to mimic flickering light for example from a fire place, candle, electrical spark or lightning." *Id.* at 1:18–23. 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 1:27–32. Flicker boxes are also "incompatible with LED light sources" and "require the use of 'hot' incandescent light sources which are energy inefficient and also pose health and safety risks to those working on set." *Id.* at 1:35–40.

The "improved solution" the '044 patent offers includes methods, controllers, and computer programs "for controlling a lighting device to produce user customizable 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 1:45–58. Figure 2 is illustrative and reproduced below.

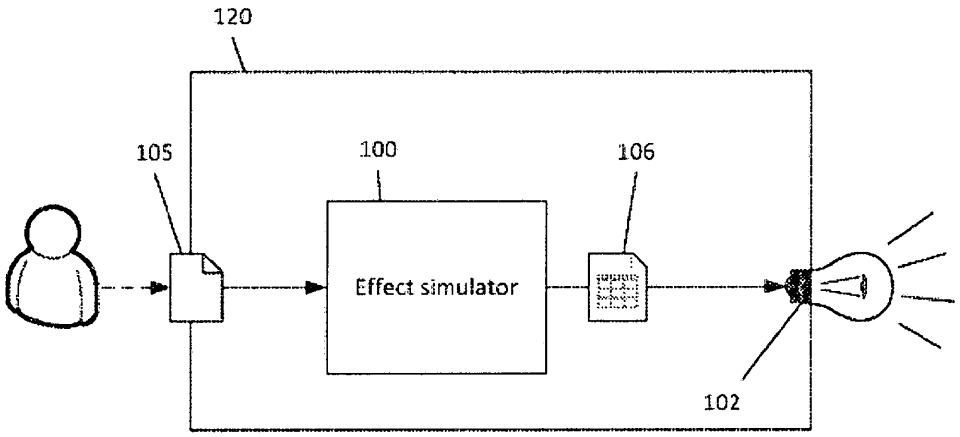


Figure 2

Figure 2 "is a schematic diagram of a further lighting system." *Id.* at 5:22. 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 5:54–6:8. "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 5:56–57, 5:61–63. The '044 patent explains that "[t]his arrangement does not require the DMX [Digital Multiplex] distribution hub **302**, power elements **304**, **306**" required in a flicker box lighting system. *Id.* at 5:57–60.

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

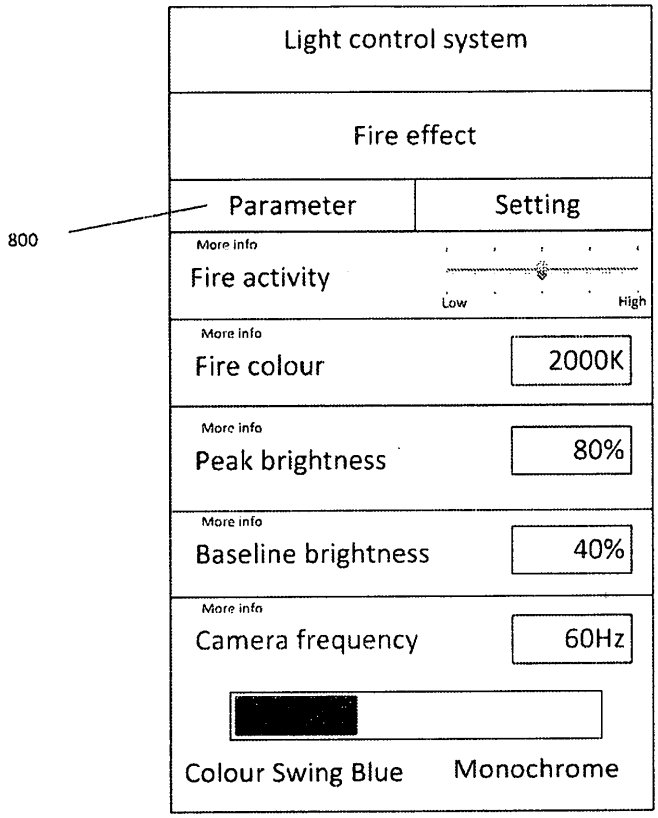


Figure 6

Figure 6 "is a graphic user interface [800] for user input of simulation parameters." *Id.* at 5:28–29. According to Figure 6, the simulated effect is a fire effect. *Id.* at 8:5–7. 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.* at 8:8–12.

D. Illustrative Claim

Petitioner challenges claims 1–19 of the '044 patent, with claims 1, 12, and 19 being the independent claims. Claim 1, reproduced below, is representative of the challenged claims.

> 1. A method for controlling a lighting device to produce a range of different user customisable lighting effects, the method comprising:
>
> receiving user input of at least one user input simulation parameter to customise a lighting effect;
>
> storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;
>
> recalling from said memory said at least one stored user input simulation parameter;
>
> calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and
>
> outputting to said lighting device said time varying lighting value thereby to simulate the lighting effect.

Ex. 1001, 11:54–12:3.

E. The Asserted Unpatentability Challenges

Petitioner asserts that claims 1–19 would have been unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–19	102[1]/103[2]	Astera[3]
1–19	102/103[4]	Edwards[5]

Pet. 2. Petitioner also relies on declaration testimony of Mr. Michael Wood (Ex. 1006, "the Wood Declaration") and Mr. Simon Canins (Ex. 1008) to support its allegations.

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Given that the application from which the '044 patent issued was filed after this date, the current versions of §§ 102 and 103 apply.
[2] Petitioner alleges only claims 1, 2, 12, 15, and 19 are "anticipat[ed] or *render[ed] obvious*" in view of Astera. Pet. 10, 35, 38, 58 (emphasis added). For claims 3–11, 13–14, and 16–18, Petitioner alleges instead that Astera "anticipates" or "discloses" the claimed subject matter. *Id.* at 38–58, 62. We understand that Petitioner alleges for this ground that only claims 1, 2, 12, 15, and 19 would have been obvious. As a result, we limit our obviousness discussion below to claims 1, 2, 12, 15, and 19.
[3] Astera LED Technology GmbH, AX10 SPOTMAX™ User Manual, dated May 7, 2015 (Ex. 1003, "Astera"), which Petitioner alleges to have a publication date of June 2015. *See* Pet. 36 (Petitioner's information pertaining to earliest publication date).
[4] Petitioner alleges only claims 1, 12, 14, and 19 are "anticipat[ed] or *render[ed] obvious*" in view of Edwards. Pet. 63, 70, 85 (emphasis added). For claims 2–11, 13, and 15–18, Petitioner alleges instead that Edwards "anticipates" or "discloses" the claimed subject matter. *Id.* at 72–84, 86–87. We understand that Petitioner alleges for this ground that only claims 1, 12, 14, and 19 would have been obvious. As a result, we limit our obviousness discussion below to claims 1, 12, 14, and 19.
[5] Charles Edwards, US 9,743,010 B1, issued August 22, 2017 (Ex. 1004, "Edwards").

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).

To anticipate, a reference must "show all of the limitations of the claims arranged or combined in the same way as recited in the claims." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

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 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.[6] *Graham*, 383 U.S. at 17–18.

At this preliminary stage, we determine whether the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims would have been anticipated by or obvious over the asserted prior art.

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 a good working knowledge of electrical engineering and entertainment lighting systems, controls, and effects." Pet. 7–8 (citing Ex. 1006 ¶ 38). Accordingly, Petitioner states that such a person would have had "an undergraduate Bachelor's degree in electrical engineering, or a comparable field, as well as some experience in the field" and that "the more education one has, the less experience needed to attain an ordinary level of skill. . . . [and] [s]imilarly, more experience in the field may serve as a substitute for formal education." *Id.* Patent Owner does not, at this time, dispute Petitioner's proposed definition. *See generally* Prelim. Resp.

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*

[6] At this stage of the proceeding, 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))). We will make any final determination pertaining to the level of ordinary skill in the art, however, on the full trial record.

C. Claim Construction

Neither Petitioner nor Patent Owner proposes any claim terms for construction. *See* Pet. 7; Prelim. Resp. 3–4. For purposes of this Decision, we need not expressly construe any claim terms at this time. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that "only those terms need to 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 Invalidity Based on Astera

Petitioner alleges that Astera anticipates claims 1–19, or would have rendered obvious the subject matter of claims 1, 2, 12, 15, and 19. Pet. 10–63. Petitioner also relies on the testimony of Mr. Wood to support its arguments. *See id.* Before turning to Petitioner's assertions based on Astera, however, we address Patent Owner's threshold argument that Petitioner fails to show sufficiently that Astera is prior art to the '044 patent.

1. Whether Petitioner Shows Sufficiently that Astera is Prior Art

Petitioner argues that "Astera is prior art under at least 35 U.S.C. § 102(a)(1)" as "the first orders from customers in the United States were in March 2015." Pet. 8 (citing Ex. 1008 ¶¶ 4–8). Petitioner also contends that

the Astera manual "bears a date of May 7, 2015, which was made publicly available, including to distributors and purchasers of the AX10, beginning in at least June of 2015." *Id.* Petitioner also relies on the declaration testimony of Mr. Canins, "the R&D Director at Astera," to corroborate Aster's public availability. *Id.*

Patent Owner asserts that Petitioner has not demonstrated that Astera is prior art because "Petitioner has failed to 'identify with particularity' evidence suggesting the Astera Manual was available 'before the critical date' of the '044 Patent, *i.e.*, April 8, 2016." *Id.* at 6–7 (citing Ex. 2001 ¶ 67). Patent Owner contends that "Petitioner supports its assertion that the date on that reference is the accurate publication date only with broad conclusory statements regarding the propriety of that date." *Id.* (citing Ex. 1008 ¶ 6). According to Patent Owner, Astera "includes disclosure of product features that were not released before the priority date of the '044 patent, let alone as of the asserted May 7, 2015 date." *Id.* (citing Ex. 2001 ¶ 69). Specifically, Patent Owner identifies the "anti-flicker" and "theft alarm" features accessible through the AsteraApp. *Id.* at 9 (citing Ex. 2001 ¶ 71; Ex. 1003, 32–33). Patent Owner asserts that these features were not released until the summer of 2016, and became available in version 9 of the AsteraApp. *Id.* (citing Ex. 2005, 102–103; Ex. 2007, 1–2; Ex. 2001 ¶ 72). Patent Owner explains that "on June 9, 2016, two months after the priority date of the '044 Patent[,] . . . the current version of the AsteraApp™ was version 8.43." *Id.* (citing Ex. 2004, 1–2).

Patent Owner argues that Mr. Canins' testimony "does not bolster Petitioner's argument that the Astera Manual was available before the

priority date of the '044 Patent." *Id.* at 11. Instead, Patent Owner explains that

> [a]ll Mr. Canins' statements support is that some version of the AX10 device was sold prior to the priority date of the '044 Patent with an accompanying user manual, but that does not address the specific issue here – *i.e.*, that *the version Petitioner has submitted as the Astera Manual* was not available until after the priority date of the '044 Patent.

Id. (citing Ex. 2001 ¶¶ 71–75, 78). Patent Owner also alleges that Petitioner was on notice of these discrepancies, as Astera's prior art status was a "key issue" in European Patent Office Proceedings involving Petitioner, yet Petitioner failed to address the discrepancies here. *Id.* at 12–13 (citing Ex. 2005, 82–87n 102–107, 118–123, 169–204, 227–263, 273–346, 419–455, 524–560; Ex. 2001 ¶¶ 77–81).

In reply, Petitioner argues that: (1) it has "presented evidence sufficient to show, by a preponderance of the evidence, that the Astera Manual was available as prior art to the '044 Patent" (Reply 2), (2) it relies on the Astera Manual and not the AsteraApp as Patent Owner alleges (*id.* at 2–3), (3) Patent Owner's evidence does not describe the "theft alarm" and "anti-flicker" as new (*id.* at 3), and (4) the "theft alarm" and "anti-flicker" features were available in 2015 (*id.* at 3–4).

Patent Owner responds to Petitioner's reply arguments and asserts that: (1) "Petitioners bear the burden of proving that a reference is valid prior art" in the first instance and determining public availability is not appropriate for post-institution (Sur-reply 1–2), (2) "the presence of not-yet-released features in the manual throws into question the accuracy of the date printed" on Astera (*id.* at 2–3), (3) the context of the exhibits shows that AsteraApp v. 9 with Talkback+ was, in fact, newly introduced and that the

"Theft Alarm" and "Anti-Flicker" features were included in this new version (*id.* at 3), and (4) the Board should not rely on the evidence introduced in the reply because Petitioner knew or should have known about Patent Owner's arguments regarding Astera's prior art status and Petitioner has not shown good cause for failing to address Astera's prior art status in the Petition (*id.* at 3–5).

A petition must "identify with particularity the grounds for institution and evidence supporting such grounds," including "the prior art relied upon and evidence that it qualifies as such." *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 13 (PTAB Dec. 20, 2019) (precedential POP decision) (citing 35 U.S.C. § 312(a)). Here, the Petition identifies the grounds for institution and the evidence supporting such grounds, and presents evidence that Astera qualifies as prior art under 35 U.S.C. § 102(a)(1). Pet. 8. Specifically, Petitioner notes that "Astera bears a date of May 7, 2015" and relies on the corroborating testimony of Mr. Canins. Pet. 8. Of particular relevance, Mr. Canins testifies that:

> [b]ased on my personal knowledge, the AX10 Manual (attached as Exhibit A) is a true and correct copy of what Astera distributed to customers from at least June 2015 through June 2017 (the date of the next version of the AX10 User Manual).
>
> [f]rom at least June 2015 through 2017, customers and other interested members of the public could also obtain information about the AX10 Product, and copies of the AX10 Manual (Exhibit A), at our website at www.astera-led.com . . . . for customers to view, access, and download at least as of June 2015.

Ex. 1008 ¶¶ 6, 8. Petitioner's evidence submitted with the Petition is sufficient to show a reasonable likelihood that Astera is prior art to the '044 patent under 35 U.S.C. § 102(a)(1). *See Hulu*, Paper 29 at 13 ("[A]t the institution stage, the petition must identify, with particularity, evidence

sufficient to establish a reasonable likelihood that the reference was publicly accessible before the critical date of the challenged patent and therefore that there is a reasonable likelihood that it qualifies as a printed publication").

In addition, Petitioner submits further argument and evidence, with its reply, to refute Patent Owner's allegations that certain product features, that is, the "theft alarm" and "anti-flicker," were not available until after the priority date of the '044 patent. *Hulu*, Paper 29 at 14 (explaining that a petitioner may present new evidence "in a reply to a patent owner preliminary response"). Specifically, Petitioner notes that the evidence Patent Owner relies upon "does not call the 'theft alarm' or the 'anti-flicker' features 'new' or 'added'" in contrast to "when Astera highlighted changes or new features to AsteraApp, . . . by displaying a 'What's New' banner." Reply 3 (citing Ex. 2005, 102–103; Ex. 1009 ¶ 4; Ex. 2004). Petitioner also relies on Mr. Canins' testimony that Patent Owner "is wrong that the 'Anti-Flicker' and 'AntiTheft' features were not available in AsteraApp until 2016" and that "[t]hese features—as depicted in the 2015 AXl0 Manual—were available in versions of AsteraApp in 2015." Ex. 1009 ¶ 5. Mr. Canins testifies that the archived AsteraApp version 8.04, finalized on April 30, 2015, was used to create the 2015 version of the AX10 Manual, and indicates the "theft alarm" and "anti-flicker" features were present in version 8.04. *Id.* at ¶¶ 6–8. This additional evidence further supports a finding, at this stage of the proceeding, that Astera is prior art to the '044 patent.

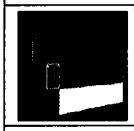
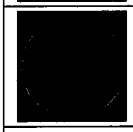
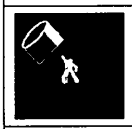
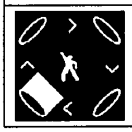
We acknowledge Patent Owner's concerns regarding Mr. Canins' purported bias. Sur-reply 4–5. Our rules authorize the cross-examination of those offering the direct testimony. 37 C.F.R. § 42.51(b)(1)(ii). Patent

Owner may test Mr. Canin's potential bias and the veracity of his statements through robust cross-examination.

At this stage of the proceeding, we find the information presented in the Petition and the Reply sufficiently demonstrates a reasonable likelihood that Astera is prior art to the '044 patent. Any final decision, however, will be based on the full record developed during the trial. We turn now to Petitioner's challenges based on Astera after first providing a brief overview of the reference.

2. Overview of Astera (Ex. 1003)

Astera is a user manual for the AX10 Spotmax—a programmable, customizable lighting apparatus that includes an array of light emitting diodes ("LEDs"). Ex. 1003, 7. The AX10 can be controlled in several ways—(1) Astera's ARC 1 infrared remote, (2) the AsteraApp, (3) by CRMS wireless DMX, (4) or a control panel. *Id.* at 9–11. The Astera lighting control system "can display static colors or replay a number of predefined effect patterns with a customizable color palette." *Id.* at 24. Exemplary effects are shown in the figure accompanying section 7.7 of Astera and reproduced below:

	A static color is displayed. There are also options that show two, three or four static colors at a time. The Flow-Set is then divided into several parts of equal length: 
	Fading colors. The four defined colors are displayed one after the other. The setup fade is applied between them. Again, the Flow-Set can be split in up to four segments.
	From both sides of a Flow-Set, the color changes position by position from C1 to C2. Once the whole Set is C2, it changes back to C1 in the same way.
	The color of the Flow-Set changes position by position. After all positions show the same color, a new cycle is started.
	Several variations of running lights are available.
	The Fire effect shows a random flickering effect. The background color and the color of the flickering effect can be adjusted.
	The rainbow effect shows a color change through all colors. Only its speed can be adjusted.
	Chaser effects provide an efficient means to create dancefloor lighting. The static chaser exchanges the color of the lights according to the tapped-in beat. The colors are randomly chosen. The effect can be adjusted to show up to 4 different colors at a time.
	The Moving Chasers overlay the static chaser by a second movement of the four displayed colors over the available positions of a Flow-Set. This gets mostly interesting of the Moving Strobe is chosen. Then, only some of the positions strobe and they are moving. So the strobe effect moves over the Flow-Set.
	When using the Chaser With Background, additionally a color can be selected that is mostly used, the background color.

This figure describes ten effects of the Astera lighting system, including static color, fading colors, a color change from both sets a of a flow-set, a flow-set where the color changes in each position, running lights, fire effect, a rainbow effect, chaser effects, moving chasers, and a chaser effect with a

background color. *Id.* at 28. For example, "[t]he fire effect shows a random flickering effect [where] [t]he background color and the color of the flickering effect can be adjusted," and "[t]he rainbow effect shows a color change through all colors [and] only its speed can be adjusted." *Id.* Effect parameters—such as speed, crossfade, stroboscope, and brightness—may be adjusted and "may be saved back to the main screen by pressing the save button." *Id.* at 27.

3. Analysis

Petitioner alleges that Astera anticipates or would have rendered obvious the subject matter of claim 1. Pet. 10. Petitioner asserts that "Astera discloses features and functionality of the AX10, a controllable lighting fixture with an array of nine 'RGBAW' (*i.e.*, red, green, blue, amber, and white) LEDs" which "can be controlled via various controllers, including the Control Panel and AsteraApp." *Id.* at 11 (citing Ex. 1003, 7, 9; Ex. 1006 ¶¶ 51–56). Petitioner explains that by using the control panel or AsteraApp, users can produce different "user customizable lighting effects." *Id.* at 12–19 (Ex. 1006 ¶¶ 53–56; Ex. 1003, 1, 11, 13, 17, 20, 21, 24–29). Therefore, Petitioner asserts that Astera describes a method of controlling a lighting device. *Id.* at 10–19.

Petitioner asserts that "[u]sers can select desired effects and input parameters through interfaces on the Control Panel or AsteraApp." Pet. 20 (citing Ex. 1003, 8, 9, 11, 20, 23–29). Petitioner explains that "[t]he Control Panel includes an LCD interface that 'receives' user selections of a lighting program (*e.g.*, those listed on page 21) and parameters of: (i) intensity; (ii) speed of a cycle of the program; (iii) fade time between steps; and (iv) color selections." *Id.* (citing Ex. 1003, 20). Petitioner further explains

that "with the AsteraApp, programs of effects, such as 'wedding,' maybe selected and 'highly customized.'" *Id.* at 22 (citing Ex. 27). Thus, Petitioner contends that the user can adjust the effect parameters in each interface. *Id.* at 22, 24 (citing Ex. 1003, 11, 20, 28, 31; Ex. 1006 ¶¶ 57–58).

Petitioner argues that memory can store the user input simulation parameters. Pet. 25 (citing Ex. 1003, 20–21, 24–28; Ex. 1006 ¶¶ 61–67). Petitioner states that "[t]he speed, fade, color, stroboscope, and brightness selectable menu options are based on the user-selected effect, and are presented as parameters for adjusting the particular selected effect." *Id.* (citing Ex. 1003, 20–21, 24–28). Petitioner explains that "[t]he effects and user adjustments made to them may also be 'saved back to the main screen by pressing the save button.'" *Id.* (quoting Ex. 1003, 27). According to Petitioner, "[o]nce saved to the main screen, these stored effects (and their modified parameters) can later be recalled and played" within the AsteraApp or through the Control Panel. *Id.* at 26–27 (citing Ex. 1003, 10–12, 14, 17, 20–22, 24, 30, claim 1; Ex. 1006 ¶¶ 62–67).

Petitioner alleges that Astera describes recalling stored user input from memory. *Id.* at 28 (Ex. 1006 ¶¶ 68–71). Petitioner contends that "[i]n AsteraApp, stored effects (within their modified parameters) can be recalled, with lighting values calculated based on the recalled effect and parameters so the effect can be played later." *Id.* (citing Ex. 1003, 24, 27, 30). "Similarly, in Standalone mode implemented through the Control Panel, saved user parameter settings are 'recalled' for the AX10 to 'replay' and 'display' the customized effect programs with the lights." *Id.* at 30 (citing Ex. 1003, 10, 17, 20–21).

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 61 of 1082

Petitioner asserts that Astera discloses that "[t]he Control Panel and AsteraApp include effect simulators to calculate time varying lighting values for generating special effects based on recalled simulation parameters," as claimed. *Id.* at 31 (citing Ex. 1003, 9–11, 13, 17, 21, 24). Petitioner states that when using the Control Panel, users may "'select' from predefined effects, and then adjust parameters including intensity (to set a brightness level), speed (to change the time to complete one cycle), fade time, and color." *Id.* (citing Ex. 1003, claim 1). These "adjusted parameters are [then] stored and [later] recalled from the AX10 (via the Control Panel) in order for the user to make selections and adjustments and play the desired effect." *Id.* According to Petitioner, "[f]or effect patterns, the values vary with time to change the output of the LEDs, creating the effect." *Id.* (citing Ex. 1003, 10, 12, 17, 20–21, 24; Ex. 1006 ¶ 73). Petitioner alleges that the AsteraApp operates similarly and "after recalling saved effects, AsteraApp calculates time varying lighting values, including brightness and color information, for these user-customized effects." *Id.* at 31–33 (citing Ex. 1003, 10, 23–30; Ex. 1006 ¶¶ 72–75).

Lastly, Petitioner argues that "[b]oth the Control Panel and AsteraApp output time-varying lighting values for the AX10 to 'display these [selected] effects properly with [its] light." *Id.* at 34 (citing Ex. 1003, 21).

Petitioner also asserts Astera anticipates or would have rendered obvious claims 2–19. Pet. 35–63. Petitioner first states that "there are no substantive differences between Claim 1 and Claims 12 and 19, and Astera anticipates and renders obvious claims 12 and 19 for the same reasons as Claim 1." *Id.* at 35–36 (providing a claim chart and additional explanation as to the differences between the challenged independent claims). Petitioner

also explains how Astera discloses the additional limitations of dependent claims 2–11, and 13–18. *Id.* at 37–63 (and evidence cited therein).

At this time, Patent Owner does not address the merits of Petitioner's contentions regarding the teachings of Astera. Petitioner's arguments and evidence regarding its challenge based on Astera, therefore, are uncontested at this preliminary stage of the proceeding. *See generally* Prelim. Resp. Based on the information presented in the Petition, we are persuaded that Petitioner demonstrates a reasonable likelihood of prevailing at trial in showing that claims 1–19 of the '044 patent are unpatentable as anticipated by Astera. Further, because, generally speaking, "anticipation is the 'epitome of obviousness,'" *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1363–64 (Fed. Cir. 2008) (quoting *In re Kalm*, 378 F.2d 959, 962 (CCPA 1967)), a disclosure that anticipates will often generally also render the claim obvious, *In re Meyer*, 599 F.2d 1026, 1030 (CCPA 1979). Accordingly, Petitioner also demonstrates a reasonable likelihood of prevailing at trial in showing that claims 1, 2, 12, 15, and 19 of the '044 patent would have been obvious over Astera.

As a result, we institute an *inter partes* review of all challenged claims and all grounds presented in the Petition. *See PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (indicating that a decision whether to institute an *inter partes review* "require[s] a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition"). Nevertheless, we provide the following observations as to Petitioner's challenges based on Edwards in order to further guide the parties after institution.

E. Alleged Invalidity based on Edwards

Petitioner additionally alleges that Edwards anticipates claims 1–19 or would have rendered obvious claims 1, 12, 14, and 19. Pet. 63–87. Petitioner relies on the testimony of Mr. Wood and Mr. Canins to support its arguments. *See id.*

1. Overview of Edwards

Edwards discloses a system and method for synchronizing LED light fixtures to digital camera shutters. Ex. 1004, code (57) (Abstract). The system controls the LEDs so that "changing of lighting can be synchronized with the times when the shutter is closed so that all frames are complete and are without the visual artifact of the light changing mid frame." *Id.* The lighting system may be configured to produce lighting effects such a lightening, strobing, a camera flash, street light flicker, fire, or candlelight, while compensating for rolling shutter artefacts . *Id.* at 3:18–28, 11:38–12.1.

The system includes "LED light fixtures" and a "lighting controller." *Id.* at 5:18-51, 6:49–62. A user may input a camera synchronization signal to the lighting controller, along with "commands that control the lights" and produce the special lighting effects. *Id.* at 5:18–24, 6:57–62, 7:20–8:1.

The lighting controller compensates for rolling shutter artefacts by holding commands to control the lights "until the next vertical frame synch pulse," then times any lighting transitions for each frame to "occur during the closed shutter period prior to the frame being captured by the camera." *Id.* at 5:24–29. Edwards, thereby, allows for "synchronization of changes in lighting to the camera shutter for videos and motion pictures. This enables all lighting transitions to be done between frames," which makes "the

resulting frame image capture clean and free from artifacts that occur when lighting changes" transpire "in the middle of a frame." *Id.* at 1:25–30.

2. Whether Petitioner Adequately Sets Forth an Obviousness Case Based on Edwards

Before providing our observations on the parties' dispute involving Edwards, we address Patent Owner's argument that "neither the Petition, nor the Wood Declaration, sets forth a proper obviousness analysis." Prelim. Resp. 15–16. According to Patent Owner, Petitioner has not presented any analysis regarding the scope and content of Edwards, identified a single difference between Edwards and independent claims 1, 12, and 19," or "provided any rationale . . . to modify the Edwards reference in such a manner to arrive at the claimed invention." *Id.* at 16 (citing Ex. 2001 ¶ 92).

Although "novelty under 35 U.S.C. § 102 and nonobviousness under 35 U.S.C. § 103 are separate conditions for patentability," as we explain above, "anticipation is the 'epitome of obviousness.'" *Cohesive Techs.*, 543 F.3d at 1363–64 (quoting *In re Kalm*, 378 F.2d at 962). Therefore, evidence that establishes a reasonable likelihood of prevailing on anticipation also generally establishes a reasonable likelihood of success in showing that the claimed subject matter would have been obvious. Further, because Petitioner's primary argument is that an ordinarily skilled artisan would have understood that Edwards discloses all of the independent claims' limitations, we are "not required to make any finding regarding a motivation to combine." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019); *see also Polygroup Ltd MCO v. Willis Elec. Co.*, 759 Fed. App'x 934, 942–43 (when a petitioner sets forth an obviousness challenge and argues that a single reference "teaches every element of the challenged claims," the "Board err[s] when it refuse[s] to consider these arguments").

As such, the Petition sets forth a sufficient obviousness analysis based on Edwards.

3. Observations as to Petitioner's Challenge Based on Edwards

Petitioner alleges that Edwards anticipates or would have rendered obvious claims 1–19. *See, e.g.*, Pet. 4 (table of asserted grounds). At this stage of the proceeding, the parties' dispute centers on whether Petitioner shows sufficiently that Edwards discloses "calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter" ("the calculating limitation"), as claim 1 recites.[7] *See* Pet. 68–69; Prelim. Resp. 17–28. Thus, we focus our observations on this dispute.

Petitioner asserts that Edwards describes the calculating limitation because, in Edwards, "[u]pon issuance of a 'RECORD' command, the lighting controllers 'recall the stored values' for the desired lighting schemes from memory and 'replay them in order, sequentially in sync with [a] sync signal.'" Pet. 68 (quoting Ex. 1004, 7:54–8:1; citing Ex. 1006 ¶¶ 143–144). Petitioner continues that "if a user selects stored schemes '1, 3, 5, for example,' the 'lights would prepare to replay scheme 1, then 3 then 5 in sequence throughout the filming'" and by "replaying selected schemes, the lighting controllers recall the parameters for the selected schemes and calculate the necessary lighting commands sent to the LED lights such that the lights produce the proper lighting for each scheme." *Id.* (citing Ex. 1004, 7:54–8:1; Ex. 1006 ¶ 144).

[7] Independent claim 19 also recites the calculating limitation and independent claim 12 recites a substantively similar limitation. *See* Ex. 1001, 12:43–44, 13:12–14. Thus, our observations also apply to these independent claims.

Patent Owner argues that the "Petition and the Wood Declaration misstate the actual teachings of Edwards with respect to this element" and that "Edwards does not disclose calculating a time varying lighting value, let alone calculating a time varying lighting value 'based on said recalled simulation parameter' (which is a parameter input by a user)." Prelim. Resp. 17 (citing Ex. 1004, 7:20–8:1; Ex. 2001 ¶¶ 95–96). Specifically, Patent Owner asserts that "[r]ecalling stored lighting schemes and playing them sequentially at evenly-spaced time intervals (*i.e.*, to correspond to the camera shutter) does not involve calculating a time varying lighting value based on the recalled user input parameter." *Id.* (citing Ex. 2001 ¶ 97). According to Patent Owner, in Edwards, "[t]he cinematographer is simply directing the lighting system to sequentially play pre-stored lighting schemes," that is, "rather than calculating lighting values, Edwards specifically discloses ***reading stored values***." *Id.* at 17–18 (citing Ex. 1004 7:63–8:1, 11:27–28; Ex. 2001 ¶ 97).

Patent Owner's arguments have merit and we have some doubt that Petitioner ultimately will establish that Edwards discloses the "calculating limitation," which all challenged claims require (either as independent claims or through dependency). At this stage of the proceeding, Patent Owner raises a genuine issue of material fact that we invite the parties to address further should they so desire.[8] We reserve final consideration of this issue until the record has been fully developed during trial.

---

[8] We caution Patent Owner that any arguments it does not raise in its Patent Owner Response are waived, even if the Board discusses them in this Decision. *See, e.g.*, *Unified Patents Inc. v. Nonend Inventions N.V.*, IPR2016-00174, Paper 28, 3–4 (PTAB July 25, 2017) (arguments raised in a patent owner preliminary response but not reasserted in a patent owner

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition. Accordingly, we institute an *inter partes* review of the '044 patent.

The factual findings set forth in this Decision are preliminary and provided for the sole purpose of deciding whether to institute a review. Any final findings will be based on the full trial record, including any information presented in a timely filed response to the Petition. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that "there is a significant difference between a petitioner's burden to establish a 'reasonable likelihood of success' at institution, and actually proving invalidity by a preponderance of the evidence at trial") (quoting 35 U.S.C. § 314(a) and comparing *id.* with § 316(e)).

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–19 of U.S. Patent No. 10,845,044 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which will commence on the entry date of this Decision.

---

response are waived). Nothing in this Decision authorizes Petitioner to supplement argument or evidence presented in the Petition on any ground in a manner not permitted by our rules.

FOR PETITIONER:

Joseph Raffetto
Celine Jimenez Crowson
Scott Hughes
HOGAN LOVELLS US LLP

joseph.raffetto@hoganlovells.com
celine.crowson@hoganlovells.com
scott.hughes@hoganlovells.com

FOR PATENT OWNER:

Alison L. McCarthy
Bryan C. Smith
Troutman Pepper Hamilton Sanders LLP

alison.mccarthy@troutman.com
bryan.smith@troutman.com

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	11/24/2020	10845044	69726	5642

67801 7590 11/04/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Roderick Allen GAMMONS, Staines Upon Thames, UNITED KINGDOM;
Rotolight Limited, London, UNITED KINGDOM;
Andrew FRANCIS, Witham, UNITED KINGDOM;
Roderick Aaron GAMMONS, Winkfield, UNITED KINGDOM;
Stefan Lange, Shepperton, UNITED KINGDOM;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 07/28/2020
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	10/28/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHAM, THAI N	2844	315-297000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: **Rotolight Limited**

(B) RESIDENCE: (CITY and STATE OR COUNTRY): **Iver Heath, United Kingdom**

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. **50-1407**

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Martin D. Moynihan/ Date October 27, 2020

Typed or printed name Martin D. Moynihan Registration No. 40338

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 71 of 1082

Electronic Patent Application Fee Transmittal

Application Number:	15481460
Filing Date:	07-Apr-2017
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Filer:	Martin Dennis Moynihan
Attorney Docket Number:	69726

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**500**

Electronic Acknowledgement Receipt	
EFS ID:	40952685
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	27-OCT-2020
Filing Date:	07-APR-2017
Time Stamp:	02:01:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$500
RAM confirmation Number	E20200Q301569211
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	69726IssueFeeTransmittalSheetfromNoticeofAllowancedated28Jul2020.pdf	234993 93bbe2e95151ca8d1ed01ab50ac72c331b5baaaa	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30039 d9e9fefc389a469f51e19fefb1f039c4543eecaa	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	265032		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 07/28/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 07/28/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	10/28/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 07/28/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	10/28/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHAM, THAI N	2844	315-297000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 77 of 1082

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 07/28/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407

EXAMINER	
PHAM, THAI N	
ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 07/28/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/481,460	Applicant(s) GAMMONS et al.	
	Examiner THAI N PHAM	Art Unit 2844	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE submitted on 06/30/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 75-88 and 90-94 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some *c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 06/30/2020.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Thai Pham/
Primary Examiner, Art Unit 2844

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 81 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP
Updated East search	07/08/2019	TP
Updated East search	10/12/2019	TP
Did the interference search	10/12/2019	TP
Looked at IDS	01/21/2020	TP
Looked at IDS	03/24/2020	TP
Updated East search	03/24/2020	TP
Looked at IDS	07/20/2020	TP
Updated East search	07/20/2020	TP

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
H05B	37/02, 37/0272, 37/029, 37/0281, 33/08, 33/0842	10/12/2019	TP
F21V	23/00, 23/003	10/12/2019	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 82 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020	03/24/2020	07/20/2020		
	1	-	-	-	-	-	-	-		
	2	-	-	-	-	-	-	-		
	3	-	-	-	-	-	-	-		
	4	-	-	-	-	-	-	-		
	5	-	-	-	-	-	-	-		
	6	-	-	-	-	-	-	-		
	7	-	-	-	-	-	-	-		
	8	-	-	-	-	-	-	-		
	9	-	-	-	-	-	-	-		
	10	-	-	-	-	-	-	-		
	11	-	-	-	-	-	-	-		
	12	-	-	-	-	-	-	-		
	13	-	-	-	-	-	-	-		
	14	-	-	-	-	-	-	-		
	15	-	-	-	-	-	-	-		
	16	-	-	-	-	-	-	-		
	17	-	-	-	-	-	-	-		
	18	-	-	-	-	-	-	-		
	19	-	-	-	-	-	-	-		
	20	-	-	-	-	-	-	-		
	21	-	-	-	-	-	-	-		
	22	-	-	-	-	-	-	-		
	23	-	-	-	-	-	-	-		
	24	-	-	-	-	-	-	-		
	25	-	-	-	-	-	-	-		
	26	-	-	-	-	-	-	-		
	27	-	-	-	-	-	-	-		
	28	-	-	-	-	-	-	-		
	29	-	-	-	-	-	-	-		
	30	-	-	-	-	-	-	-		
	31	-	-	-	-	-	-	-		
	32	-	-	-	-	-	-	-		
	33	-	-	-	-	-	-	-		
	34	-	-	-	-	-	-	-		
	35	-	-	-	-	-	-	-		
	36	-	-	-	-	-	-	-		
	37	-	-	-	-	-	-	-		
	38	-	-	-	-	-	-	-		
	39	-	-	-	-	-	-	-		
	40	-	-	-	-	-	-	-		
	41	-	-	-	-	-	-	-		
	42	-	-	-	-	-	-	-		

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 83 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020	03/24/2020	07/20/2020		
	43	-	-	-	-	-	-	-		
	44	-	-	-	-	-	-	-		
	45	-	-	-	-	-	-	-		
	46	-	-	-	-	-	-	-		
	47	-	-	-	-	-	-	-		
	48	-	-	-	-	-	-	-		
	49	-	-	-	-	-	-	-		
	50	-	-	-	-	-	-	-		
	51	-	-	-	-	-	-	-		
	52	-	-	-	-	-	-	-		
	53	-	-	-	-	-	-	-		
	54	-	-	-	-	-	-	-		
	55	✓	-	-	-	-	-	-		
	56	✓	-	-	-	-	-	-		
	57	✓	-	-	-	-	-	-		
	58	✓	-	-	-	-	-	-		
	59	✓	-	-	-	-	-	-		
	60	✓	-	-	-	-	-	-		
	61	✓	-	-	-	-	-	-		
	62	✓	-	-	-	-	-	-		
	63	✓	-	-	-	-	-	-		
	64	✓	-	-	-	-	-	-		
	65	✓	-	-	-	-	-	-		
	66	✓	-	-	-	-	-	-		
	67	✓	-	-	-	-	-	-		
	68	✓	-	-	-	-	-	-		
	69	✓	-	-	-	-	-	-		
	70	✓	-	-	-	-	-	-		
	71	✓	-	-	-	-	-	-		
	72	✓	-	-	-	-	-	-		
	73	✓	-	-	-	-	-	-		
	74	✓	-	-	-	-	-	-		
	75		✓	=	=	=	=	=		
	76		✓	=	=	=	=	=		
	77		✓	=	=	=	=	=		
	78		✓	=	=	=	=	=		
	79		✓	=	=	=	=	=		
	80		✓	=	=	=	=	=		
	81		✓	=	=	=	=	=		
	82		✓	=	=	=	=	=		
	83		✓	=	=	=	=	=		
	84		✓	=	=	=	=	=		
	85		✓	=	=	=	=	=		
	86		✓	=	=	=	=	=		
	87		✓	=	=	=	=	=		
	88		✓	=	=	=	=	=		
	89		✓	-	-	-	-	-		
	90		✓	=	=	=	=	=		
	91		✓	=	=	=	=	=		
	92		✓	O	=	=	=	=		
	93		✓	=	=	=	=	=		
	94		✓	O	=	=	=	=		

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 84 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

CPC						
Symbol					**Type**	**Version**
F21V	/	23	/	003	F	2013-01-01
H05B	/	47	/	18	I	2020-01-01
H05B	/	47	/	19	I	2020-01-01
H05B	/	47	/	155	I	2020-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	20 July 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200718

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 85 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F21V	/	23	/	00
H05B	/	37	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	20 July 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200718

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 86 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	13	-	25	-	37	-	49	-	61	-	73	11	85
-	2	-	14	-	26	-	38	-	50	-	62	-	74	12	86
-	3	-	15	-	27	-	39	-	51	-	63	1	75	13	87
-	4	-	16	-	28	-	40	-	52	-	64	2	76	14	88
-	5	-	17	-	29	-	41	-	53	-	65	3	77	-	89
-	6	-	18	-	30	-	42	-	54	-	66	4	78	15	90
-	7	-	19	-	31	-	43	-	55	-	67	5	79	16	91
-	8	-	20	-	32	-	44	-	56	-	68	6	80	17	92
-	9	-	21	-	33	-	45	-	57	-	69	7	81	18	93
-	10	-	22	-	34	-	46	-	58	-	70	8	82	19	94
-	11	-	23	-	35	-	47	-	59	-	71	9	83		
-	12	-	24	-	36	-	48	-	60	-	72	10	84		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	20 July 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200718

Bibliographic Data

Application No: 15/481,460

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /Thai Pham/ Examiner's Signature [ ] Initials

Title: LIGHTING SYSTEM AND CONTROL THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/07/2017	315	2844	69726
RULE			

APPLICANTS

Rotolight Limited, London, UNITED KINGDOM

INVENTORS

Roderick Allen GAMMONS, Staines Upon Thames, UNITED KINGDOM

Andrew FRANCIS, Witham, UNITED KINGDOM

Roderick Aaron GAMMONS, Winkfield, UNITED KINGDOM

Stefan Lange, Shepperton, UNITED KINGDOM

CONTINUING DATA

This application has PRO of 62319809 04/08/2016

FOREIGN APPLICATIONS

UNITED KINGDOM 1606907.2 04/20/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED KINGDOM

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
c/o Purrfect Patents LLC
11213 Piedmont Drive
Fredericksburg, VA 22407
UNITED STATES

FILING FEE RECEIVED

$1,100

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3] Number [4] Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature | Date Considered

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 2 Of 2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Declaration of Roderick Aaron Gammons, CEO of Rotolight Limited. Signed on 30 June 2020, 3 pages.	
	2	Vibesta B. V. Third Party Observation for Application No. EP20170165609 Submitted 17 October 2019, 25 pages.	
	3	Vibesta B. V. Third Party Observation for Patent GB 2562144 Dated 17 October 2019, 26 pages.	

Examiner Signature	/Thai Pham/	Date Considered	07/18/2020

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	(("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48

S11	48,723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23
S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S17	48,822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2018/03/02 17:41

			DERWENT; IBM_TDB			
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59
S22	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" | "20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:00
S23	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2018/12/21 19:41

			DERWENT; IBM_TDB			
S24	26	(US-0094798-$ | US-0112862-$ | US-0135842-$ | US-0139130-$ | US-0257007-$ | US-20040257007-$ | US-20140139130-$ | US-20180094798-$ | US-20180112862-$ | US-20180135842-$ | US-2120512-$ | US-3002995-$ | US-7777427-$ | US-8253666-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:10
S26	59,607	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S27	203	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S29	1,093	light$4 with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:49
S30	137	S26 and S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:50
S31	12	("20070159347" | "20080129226" | "5924784" | "7038399").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:52
S32	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2019/10/15 10:56

			DERWENT; IBM_TDB			
S33	6	("20030176205" | "20040110540" | "20070146332" | "20070173291" | "7120471" | "7266397").PN. OR ("8320887").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/10/15 10:59
S34	260	light$4 same effect same control$4 same memory same user same (calculat$4 or comput$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:00
S35	4	S26 and S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:01
S36	92	light$4 with control$4 with memory with stor$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:02
S37	3	S26 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:04
S38	74	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:06
S39	33	S26 and S38	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:07

S48	4	"20170165609"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:18
S49	22	"3229463"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:20
S51	6	(US-0044374-$ | US-20120044374-$ | US-7014336-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/03/25 17:49
S52	677	("20010033488" | "20020038157" | "20020044066" | "20020047569" | "20020047624" | "20020048169" | "20020057061" | "20020060526" | "20020070688" | "20020074559" | "20020078221" | "20020101197" | "20020130627" | "20020145394" | "20020145869" | "20020152045" | "20020153851" | "20020158583" | "20020163316" | "20020171365" | "20020171377" | "20020171378" | "20020176259" | "20020195975" | "20030011538" | "20030028260" | "20030057884" | "20030057886" | "20030057887" | "20030057890" | "20030076281" | "20030100837" | "20030107887" | "20030133292" | "20030137258" | "20030189412" | "20030198061" | "20030222587" | "20040032226" | "20040036006" | "20040052076" | "20040066652" | "20040090787" | "20040105261" | "20040130909" | "20040218387" | "2725461" | "3595991" | "3760174" | "4271408" | "4339788" | "4342947" | "4455562" | "4656398" | "4845481" | "4857801" | "4870325" | "4947291" | "4962687" | "5008788" | "5036248" | "5038255" | "5089748" | "5136483" | "5161879" | "5278542" | "5287352" |	US-PGPUB; USPAT; USOCR	OR	OFF	2020/03/25 17:53

		"5301090" | "5350977" | "5375043" | "5388357" | "5420482" | "5450301" | "5519496" | "5521708" | "5532848" | "5535230" | "5559681" | "5621282" | "5621603" | "5634711" | "5684309" | "5688042" | "5712650" | "5721471" | "5752766" | "5790329" | "5803579" | "5812105" | "5813753" | "5831686" | "5836676" | "5838247" | "5850126" | "5851063" | "5854542" | "5895986" | "5907742" | "5924784" | "5961201" | "6016038" | "6020825" | "6028694" | "6056420" | "6068383" | "6127783" | "6132072" | "6149283" | "6150771").PN. OR ("6150774" | "6158882" | "6166496" | "6183086" | "6183104" | "6183108" | "6188181" | "6211626" | "6212213" | "6234645" | "6234648" | "6235648" | "6250774" | "6252254" | "6255670" | "6273589" | "6283612" | "6292901" | "6294800" | "6299329" | "6323832" | "6329764" | "6330111" | "6331915" | "6340868" | "6357889" | "6357893" | "6361186" | "6369525" | "6379022" | "6411046" | "6441558" | "6445139" | "6448550" | "6459919" | "6469322" | "6474837" | "6495964" | "6504301" | "6507159" | "6510995" | "6513949" | "6528954" | "6548967" | "6550952" | "6551282" | "6552495" | "6577080" | "6592238" | "6596977" | "6599000" | "6600175" | "6608453" | "6624597" | "6630691" | "6630801" | "6636003" | "6692136" | "6717376" | "6720745" | "6726350").PN. OR ("7014336").URPN.				
S53	3	"17165609.3"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/20 12:54
S54	0	"1802585.8"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/20 13:05

S55	14	("20040257007" | "20070159347" | "20080129226" | "20140139130" | "20170343197" | "20180112862" | "20180135842" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071" | "7777427" | "8253666").PN. OR ("10197257").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/20 13:11
S57	5	("20070159347" | "20080129226" | "20140139130" | "5924784" | "7038399").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/07/20 13:14

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S40	18,813	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT	OR	ON	2019/10/15 11:09
S41	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:10
S42	41	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:11
S43	16	S40 and S42	US-PGPUB; USPAT	OR	ON	2019/10/15 11:12
S44	61	light$4 same effect same control$4 same (user near5 input) same (calculat$4 or comput$4) same (memory or stor$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S45	1	S40 and S44	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S46	12	light$4 with effect with control$4 with (user near5 input) with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:17
S47	117	(light$4 and effect and control$4 and memory and stor$4 and user and input and interface and (calculat$4 or comput$4) and (vary$4 or adjust$4 or tun$4)).clm.	US-PGPUB; USPAT	OR	ON	2019/10/15 11:19

7/20/2020 1:15:45 PM
C:\Users\tpham3\Documents\EAST\Workspaces\15481460.wsp

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

	Complete if Known
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Sheet 1 of 2	Attorney Docket Number 69726

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3]- Number [4]- Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Declaration of Roderick Aaron Gammons, CEO of Rotolight Limited. Signed on 30 June 2020, 3 pages.	
	2	Vibesta B. V. Third Party Observation for Application No. EP20170165609 Submitted 17 October 2019, 25 pages.	
	3	Vibesta B. V. Third Party Observation for Patent GB 2562144 Dated 17 October 2019, 26 pages.	

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§		
	§		
GAMMONS Roderick Allen et al	§		
	§	Confirmation No.:	5642
Serial No.: 15/481,460	§		
	§		
Filed: April 07, 2017	§	Group Art Unit:	2844
	§		
For: LIGHTING SYSTEM AND CONTROL THEREOF	§		
	§		
	§	Attorney Docket:	69726
Examiner: PHAM Thai N.	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

We file herewith an Information Disclosure Statement to disclose to the Examiner copies of third party observations that have been filed in respect of the Applicant's corresponding pending UK Patent Application No. 1802585.8 and European Patent Application No. 17165609.3. We also file herewith a Declaration, signed by the CEO of the Applicant, Rotolight Limited, who is also co-inventor for this present US patent application.

The effective filing date (the priority date) of the present US patent application is April 8, 2016. Under 35 U.S.C. § 102(b)(1)(A), disclosures made 1 year or less before the effective filing date shall not be prior art if that disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor. As the Examiner will see, all of the alleged disclosures referenced in the third party observations are alleged to have been made after April 8, 2015 and made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly therefrom. On this basis, these alleged disclosures are not prior art and therefore are not material to the patentability of this present US patent application. Nonetheless, because these third party observations have been filed in respect of related non-US patent applications,

these third party observations are being disclosed to the Examiner out of an abundance of caution to ensure fulfilment of the duty of disclosure, candor, and good faith to the Office.

We look forward to receiving a further Notice of Allowance.

Enclosed is a PTO Form 1449 which lists citations which may be material to the patentability and examination of the above identified application. Also enclosed are copies of the references cited, other than U.S. Patents and U.S. patent applications. These are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56, 37 CFR 1.97 and 37 CFR 1.98. The Examiner is requested to make these citations of official record in this application.

The undersigned states:

A. NO CERTIFICATION OR FEE DUE

☒ This Information disclosure Statement is being filed within three months of filing a national application or entry of a national phase of an international application; or before the mailing date of a first Office action on the merits of the above-identified application. Accordingly, no fee or Certification is believed due. However, if a fee is due, authorization to deduct such fee from the Deposit Account 501407 of the undersigned is hereby provided.

B. CERTIFICATION

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

C. FEE

☐

☒ No Fee is Due.

This Information Disclosure Statement under 37 CFR 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of the citations listed constitutes prior art as defined by 35 U.S.C. 102.

It is respectfully requested that the Examiner consider the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and sign the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application. Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information.

FOR PATENT TERM ADJUSTMENT CALCULATION PURPOSES ONLY:

Unless indicated otherwise, to the best of our knowledge and procedures, each item of information contained in the information disclosure statement was first known no more than thirty days prior to the filing of the information disclosure statement, either by the inventor named in the application, Attorney or agent who prepares or prosecutes the application, and every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application.

Respectfully submitted,

/ Martin D. Moynihan /

Martin D. Moynihan
Registration No. 40338
Telephone: (703)859-9634

Date: 30 June 2020

Electronic Acknowledgement Receipt

EFS ID:	39872845
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan/Darrell Hollis
Filer Authorized By:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Receipt Date:	30-JUN-2020
Filing Date:	07-APR-2017
Time Stamp:	15:19:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	_form1449.pdf	45823 ba74f495fcb27ff93ef78cc4bf335ffcb0e0a7ab	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	_USPTOltr.pdf	30198 2224d2a2b1810ad9f57b9c9523e7f369d31a65a4	no	3
Warnings:					
Information:					
3	Non Patent Literature	1-345109.pdf	274470 8131ba39a1d35db2ffda4c3f4f771f5ce7550cb1	no	3
Warnings:					
Information:					
4	Non Patent Literature	2-345111.pdf	5452296 e91997226953e0b3c4b232f48805681bb858d972	no	25
Warnings:					
Information:					
5	Non Patent Literature	3-345110.pdf	1610840 0fa54f0326bac4c8564dfb874b843372c234586e	no	26
Warnings:					
Information:					
		Total Files Size (in bytes):	7413627		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (11-17)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	15/481,460
Filing Date	April 7, 2017
First Named Inventor	Roderick Allen GAMMONS
Art Unit	2844
Examiner Name	Thai N. PHAM
Attorney Docket Number	69726

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 50-1407.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☐ Payment by EFS-Web

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Martin D. Moynihan/	Date	June 30, 2020
Name (Print/Type)	Martin D. Moynihan	Registration No.	40338

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal	
Application Number:	15481460
Filing Date:	07-Apr-2017
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Filer:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Filed as Small Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt	
EFS ID:	39866030
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	30-JUN-2020
Filing Date:	07-APR-2017
Time Stamp:	10:49:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$950
RAM confirmation Number	E20206TA49475820
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Post Allowance Communication - Incoming	69726RespNoticeAllowance1Apr2020.pdf	15687 e7931e76588a003281f8415625bb14e35ac791d2	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	69726RCEWithdrawAllowance.pdf	126114 2f36fa128ec3f174e28c0691db75c10a124bc74d	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30302 ab004af16ce61fc5fef16f8982b49841c4ca7ac7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	172103		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM	§		

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF ALLOWANCE

Sir:

This is a response to the Notice of Allowance dated April 1, 2020 for which payment is due on or before July 1, 2020.

Applicant hereby submits a Request for Continued Examination (RCE). Applicant will soon submit a Supplemental Information Disclosure Statement (IDS) and copies of the references cited therein.

The allowance of claims 75-88 and 90-94 and a new Notice of Allowance after consideration of the references cited in the Supplemental Information Disclosure Statement is respectfully requested.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: June 30, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 04/01/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 04/01/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	07/01/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 113 of 1082

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 04/01/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	07/01/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHAM, THAI N	2844	315-297000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 114 of 1082

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 04/01/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, THAI N	
ART UNIT	**PAPER NUMBER**
2844	

DATE MAILED: 04/01/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/481,460	Applicant(s) GAMMONS et al.	
	Examiner THAI N PHAM	Art Unit 2844	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE submittted on 03/05/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 75-88 and 90-94 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some *c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 03/05/2020.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Thai Pham/
Primary Examiner, Art Unit 2844

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 117 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020	03/24/2020			
	1	-	-	-	-	-	-			
	2	-	-	-	-	-	-			
	3	-	-	-	-	-	-			
	4	-	-	-	-	-	-			
	5	-	-	-	-	-	-			
	6	-	-	-	-	-	-			
	7	-	-	-	-	-	-			
	8	-	-	-	-	-	-			
	9	-	-	-	-	-	-			
	10	-	-	-	-	-	-			
	11	-	-	-	-	-	-			
	12	-	-	-	-	-	-			
	13	-	-	-	-	-	-			
	14	-	-	-	-	-	-			
	15	-	-	-	-	-	-			
	16	-	-	-	-	-	-			
	17	-	-	-	-	-	-			
	18	-	-	-	-	-	-			
	19	-	-	-	-	-	-			
	20	-	-	-	-	-	-			
	21	-	-	-	-	-	-			
	22	-	-	-	-	-	-			
	23	-	-	-	-	-	-			
	24	-	-	-	-	-	-			
	25	-	-	-	-	-	-			
	26	-	-	-	-	-	-			
	27	-	-	-	-	-	-			
	28	-	-	-	-	-	-			
	29	-	-	-	-	-	-			
	30	-	-	-	-	-	-			
	31	-	-	-	-	-	-			
	32	-	-	-	-	-	-			
	33	-	-	-	-	-	-			
	34	-	-	-	-	-	-			
	35	-	-	-	-	-	-			
	36	-	-	-	-	-	-			
	37	-	-	-	-	-	-			
	38	-	-	-	-	-	-			
	39	-	-	-	-	-	-			
	40	-	-	-	-	-	-			
	41	-	-	-	-	-	-			
	42	-	-	-	-	-	-			

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 118 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020	03/24/2020			
	43	-	-	-	-	-	-			
	44	-	-	-	-	-	-			
	45	-	-	-	-	-	-			
	46	-	-	-	-	-	-			
	47	-	-	-	-	-	-			
	48	-	-	-	-	-	-			
	49	-	-	-	-	-	-			
	50	-	-	-	-	-	-			
	51	-	-	-	-	-	-			
	52	-	-	-	-	-	-			
	53	-	-	-	-	-	-			
	54	-	-	-	-	-	-			
	55	✓	-	-	-	-	-			
	56	✓	-	-	-	-	-			
	57	✓	-	-	-	-	-			
	58	✓	-	-	-	-	-			
	59	✓	-	-	-	-	-			
	60	✓	-	-	-	-	-			
	61	✓	-	-	-	-	-			
	62	✓	-	-	-	-	-			
	63	✓	-	-	-	-	-			
	64	✓	-	-	-	-	-			
	65	✓	-	-	-	-	-			
	66	✓	-	-	-	-	-			
	67	✓	-	-	-	-	-			
	68	✓	-	-	-	-	-			
	69	✓	-	-	-	-	-			
	70	✓	-	-	-	-	-			
	71	✓	-	-	-	-	-			
	72	✓	-	-	-	-	-			
	73	✓	-	-	-	-	-			
	74	✓	-	-	-	-	-			
	75		✓	=	=	=	=			
	76		✓	=	=	=	=			
	77		✓	=	=	=	=			
	78		✓	=	=	=	=			
	79		✓	=	=	=	=			
	80		✓	=	=	=	=			
	81		✓	=	=	=	=			
	82		✓	=	=	=	=			
	83		✓	=	=	=	=			
	84		✓	=	=	=	=			
	85		✓	=	=	=	=			
	86		✓	=	=	=	=			
	87		✓	=	=	=	=			
	88		✓	=	=	=	=			
	89		✓	-	-	-	-			
	90		✓	=	=	=	=			
	91		✓	=	=	=	=			
	92		✓	O	=	=	=			
	93		✓	=	=	=	=			
	94		✓	O	=	=	=			

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 119 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

CPC						
Symbol					**Type**	**Version**
F21V	/	23	/	003	F	2013-01-01
H05B	/	47	/	18	I	2020-01-01
H05B	/	47	/	19	I	2020-01-01
H05B	/	47	/	155	I	2020-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	24 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200324

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 120 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F21V	/	23	/	00
H05B	/	37	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	24 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200324

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 121 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	13	-	25	-	37	-	49	-	61	-	73	11	85
-	2	-	14	-	26	-	38	-	50	-	62	-	74	12	86
-	3	-	15	-	27	-	39	-	51	-	63	1	75	13	87
-	4	-	16	-	28	-	40	-	52	-	64	2	76	14	88
-	5	-	17	-	29	-	41	-	53	-	65	3	77	-	89
-	6	-	18	-	30	-	42	-	54	-	66	4	78	15	90
-	7	-	19	-	31	-	43	-	55	-	67	5	79	16	91
-	8	-	20	-	32	-	44	-	56	-	68	6	80	17	92
-	9	-	21	-	33	-	45	-	57	-	69	7	81	18	93
-	10	-	22	-	34	-	46	-	58	-	70	8	82	19	94
-	11	-	23	-	35	-	47	-	59	-	71	9	83		
-	12	-	24	-	36	-	48	-	60	-	72	10	84		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	24 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200324

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 122 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 123 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP
Updated East search	07/08/2019	TP
Updated East search	10/12/2019	TP
Did the interference search	10/12/2019	TP
Looked at IDS	01/21/2020	TP
Looked at IDS	03/24/2020	TP
Updated East search	03/24/2020	TP

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
H05B	37/02, 37/0272, 37/029, 37/0281, 33/08, 33/0842	10/12/2019	TP
F21V	23/00, 23/003	10/12/2019	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 124 of 1082

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2012/0044374	23-Feb-2012	Pohlert et al.	
	2	7,014,336	21-Mar-2006	Ducharme et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3] Number [4] Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
	3	WO 2011/103518	25-Aug-2011	Pohlert et al.		

Examiner Signature	/Thai Pham/	Date Considered	03/24/2020

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	4	Third Party Observation for European Application Number EP20170165609 Dated 17 October 2019. (4 Pages)	
	5	Third Party Observation for European Application Number EP20170165609 Dated 28 June 2019. (2 Pages)	
	6	Third Party Observation for European Application Number EP20170165609 Dated 29 June 2019. (4 Pages)	
	7	Astera "ARC2 - Radio Frequency Remote Controller: User Manual", Astera LED Technology, Version 3.1.7, 21 P., 02 June 2010.	
	8	Daslight "Daslight Virtual Controller 2: User Manual", Daslight, P.1-45, 08 December 2017.	
	9	SGM "P-5 Wash Light User Manual", SGM, Version 2.43, P.1-63, 2015.	
	10	Showline "SL PAR 155 Zoom RGBW LED Luminaire: Installation & User's Manual", Showline, Vari-Lite, P.1-43, 10 December 2013.	

Examiner Signature	/Thai Pham/	Date Considered	03/24/2020

[*] EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-600-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	(("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48
S11	48723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23

S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S17	48822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59
S22	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" |	US-PGPUB; USPAT;	OR	ON	2018/12/21 19:00

		"20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S23	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:41
S24	26	(US-0094798-$ | US-0112862-$ | US-0135842-$ | US-0139130-$ | US-0257007-$ | US-20040257007-$ | US-20140139130-$ | US-20180094798-$ | US-20180112862-$ | US-20180135842-$ | US-2120512-$ | US-3002995-$ | US-7777427-$ | US-8253666-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:10
S26	59607	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S27	203	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S29	1093	light$4 with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:49

S30	137	S26 and S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:50
S31	12	("20070159347" | "20080129226" | "5924784" | "7038399").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:52
S32	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:56
S33	6	("20030176205" | "20040110540" | "20070146332" | "20070173291" | "7120471" | "7266397").PN. OR ("8320887").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/10/15 10:59
S34	260	light$4 same effect same control$4 same memory same user same (calculat$4 or comput$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:00
S35	4	S26 and S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:01
S36	92	light$4 with control$4 with memory with stor$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:02
S37	3	S26 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:04
S38	74	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:06
S39	33	S26 and S38	US-PGPUB;	OR	ON	2019/10/15

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			11:07
S48	4	"20170165609"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:18
S49	22	"3229463"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:20
S51	6	(US-0044374-$ | US-20120044374-$ | US-7014336-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/03/25 17:49
S52	677	("20010033488" | "20020038157" | "20020044066" | "20020047569" | "20020047624" | "20020048169" | "20020057061" | "20020060526" | "20020070688" | "20020074559" | "20020078221" | "20020101197" | "20020130627" | "20020145394" | "20020145869" | "20020152045" | "20020153851" | "20020158583" | "20020163316" | "20020171365" | "20020171377" | "20020171378" | "20020176259" | "20020195975" | "20030011538" | "20030028260" | "20030057884" | "20030057886" | "20030057887" | "20030057890" | "20030076281" | "20030100837" | "20030107887" | "20030133292" | "20030137258" | "20030189412" | "20030198061" | "20030222587" | "20040032226" | "20040036006" | "20040052076" | "20040066652" | "20040090787" | "20040105261" | "20040130909" | "20040218387" | "2725461" | "3595991" | "3760174" | "4271408" | "4339788" | "4342947" | "4455562" | "4656398" | "4845481" | "4857801" | "4870325" | "4947291" | "4962687" | "5008788" | "5036248" | "5038255" | "5089748" | "5136483" | "5161879" | "5278542" | "5287352" | "5301090" | "5350977" | "5375043" | "5388357" | "5420482" | "5450301" | "5519496" | "5521708" | "5532848" | "5535230" | "5559681" | "5621282" | "5621603" | "5634711" | "5684309" | "5688042" | "5712650" | "5721471" |	US-PGPUB; USPAT; USOCR	OR	OFF	2020/03/25 17:53

		"5752766" | "5790329" | "5803579" | "5812105" | "5813753" | "5831686" | "5836676" | "5838247" | "5850126" | "5851063" | "5854542" | "5895986" | "5907742" | "5924784" | "5961201" | "6016038" | "6020825" | "6028694" | "6056420" | "6068383" | "6127783" | "6132072" | "6149283" | "6150771").PN. OR ("6150774" | "6158882" | "6166496" | "6183086" | "6183104" | "6183108" | "6188181" | "6211626" | "6212213" | "6234645" | "6234648" | "6235648" | "6250774" | "6252254" | "6255670" | "6273589" | "6283612" | "6292901" | "6294800" | "6299329" | "6323832" | "6329764" | "6330111" | "6331915" | "6340868" | "6357889" | "6357893" | "6361186" | "6369525" | "6379022" | "6411046" | "6441558" | "6445139" | "6448550" | "6459919" | "6469322" | "6474837" | "6495964" | "6504301" | "6507159" | "6510995" | "6513949" | "6528954" | "6548967" | "6550952" | "6551282" | "6552495" | "6577080" | "6592238" | "6596977" | "6599000" | "6600175" | "6608453" | "6624597" | "6630691" | "6630801" | "6636003" | "6692136" | "6717376" | "6720745" | "6726350").PN. OR ("7014336").URPN.				

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S40	18813	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT	OR	ON	2019/10/15 11:09
S41	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:10
S42	41	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:11
S43	16	S40 and S42	US-PGPUB; USPAT	OR	ON	2019/10/15 11:12
S44	61	light$4 same effect same control$4 same (user near5 input) same (calculat$4 or comput$4) same (memory or stor$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S45	1	S40 and S44	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S46	12	light$4 with effect with control$4 with (user near5 input) with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:17
S47	117	(light$4 and effect and control$4 and memory and stor$4 and user and input and interface and (calculat$4 or comput$4) and (vary$4 or	US-PGPUB; USPAT	OR	ON	2019/10/15 11:19

		adjust$4 or tun$4)).clm.					

3/25/2020 5:56:54 PM
C:\Users\tpham3\Documents\EAST\Workspaces\15481460.wsp

Bibliographic Data

Application No: 15/481,460

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /Thai Pham/ Examiner's Signature [ ] Initials

Title: LIGHTING SYSTEM AND CONTROL THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/07/2017	315	2844	69726
RULE			

APPLICANTS

Rotolight Limited, London, UNITED KINGDOM

INVENTORS

Roderick Allen GAMMONS Staines Upon Thames, UNITED KINGDOM

Andrew FRANCIS Witham, UNITED KINGDOM

Roderick Aaron GAMMONS Winkfield, UNITED KINGDOM

Stefan Lange Shepperton, UNITED KINGDOM

CONTINUING DATA

This application has PRO of 62319809 04/08/2016

FOREIGN APPLICATIONS

UNITED KINGDOM 1606907.2 04/20/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED KINGDOM

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215
UNITED STATES

FILING FEE RECEIVED

$1,100

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

	Complete if Known
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2012/0044374	23-Feb-2012	Pohlert et al.	
	2	7,014,336	21-Mar-2006	Ducharme et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3]- Number [4]- Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
	3	WO 2011/103518	25-Aug-2011	Pohlert et al.		

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	4	Third Party Observation for European Application Number EP20170165609 Dated 17 October 2019. (4 Pages)	
	5	Third Party Observation for European Application Number EP20170165609 Dated 28 June 2019. (2 Pages)	
	6	Third Party Observation for European Application Number EP20170165609 Dated 29 June 2019. (4 Pages)	
	7	Astera "ARC2 - Radio Frequency Remote Controller: User Manual", Astera LED Technology, Version 3.1.7, 21 P., 02 June 2010.	
	8	Daslight "Daslight Virtual Controller 2: User Manual", Daslight, P.1-45, 08 December 2017.	
	9	SGM "P-5 Wash Light User Manual", SGM, Version 2.43, P.1-63, 2015.	
	10	Showline "SL PAR 155 Zoom RGBW LED Luminaire: Installation & User's Manual", Showline, Vari-Lite, P.1-43, 10 December 2013.	

Examiner Signature		Date Considered	

[*] EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:			
	GAMMONS Roderick Allen et al		
		Confirmation No.:	5642
Serial No.:	15/481,460		
Filed:	April 07, 2017	Group Art Unit:	2844
For:	LIGHTING SYSTEM AND CONTROL THEREOF [CineSFX]		
		Attorney Docket:	69726
Examiner:	PHAM Thai N.		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a PTO Form 1449 which lists citations which may be material to the patentability and examination of the above identified application. Also enclosed are copies of the references cited, other than U.S. Patents and U.S. patent applications. These are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56, 37 CFR 1.97 and 37 CFR 1.98. The Examiner is requested to make these citations of official record in this application.

The undersigned states:

A. NO CERTIFICATION OR FEE DUE

☒ This Information disclosure Statement is being filed within three months of filing a national application or entry of a national phase of an international application; or before the mailing date of a first Office action on the merits of the above-identified application. Accordingly, no fee or Certification is believed due. However, if a fee is due, authorization to deduct such fee from the Deposit Account 501407 of the undersigned is hereby provided.

B. CERTIFICATION

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

C. FEE

☐

☒ No Fee is Due.

This Information Disclosure Statement under 37 CFR 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of the citations listed constitutes prior art as defined by 35 U.S.C. 102.

It is respectfully requested that the Examiner consider the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and sign the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application. Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information.

FOR PATENT TERM ADJUSTMENT CALCULATION PURPOSES ONLY:

Unless indicated otherwise, to the best of our knowledge and procedures, each item of information contained in the information disclosure statement was first known no more than thirty days prior to the filing of the information disclosure statement, either by the inventor named in the application, Attorney or agent who prepares or prosecutes the application, and every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application.

Respectfully submitted,

/ Martin D. Moynihan /

Martin D. Moynihan
Registration No. 40338
Telephone: (703)859-9634

Date: 28 February 2020

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 August 2011 (25.08.2011)

PCT

(10) International Publication Number
WO 2011/103518 A1

(51) International Patent Classification:
H04N 5/225 (2006.01)

(21) International Application Number:
PCT/US2011/025560

(22) International Filing Date:
18 February 2011 (18.02.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/306,433 19 February 2010 (19.02.2010) US

(71) Applicant *(for all designated States except US)*: **LITEPANELS, LTD** [GB/GB]; 73 Western Way, Bury St Edmonds, Suffolk (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **POHLERT, Rudy, G.** [US/US]; 24531 Mulholland Hwy, Calabasas, CA 91302 (US). **GROSSWENDT, Pat** [US/US]; 28954 Crest Drive, Agoura, CA 91301 (US). **FISHER, Ken** [US/US]; 5521 Cleon Avenue, North Hollywood, CA 91601 (US). **BAXTER, Kevin, C.** [US/US]; 3830 Hillway Drive, Glendale, CA 91208 (US). **HOLMES, Fred, H.** [US/US]; 991 North Scenic Drive, Cleveland, OK 74020 (US).

(74) Agent: **ZINGERMAN, Scott, R.**; Fellers, Snider, Blankenship, Bailey & Tippens, P.C, 321 South Boston, Suite 800, Tulsa, OK 74103-3318 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) **Title**: PHOTOGRAPHY LED LIGHTING AND EFFECTS GENERATION SYSTEM

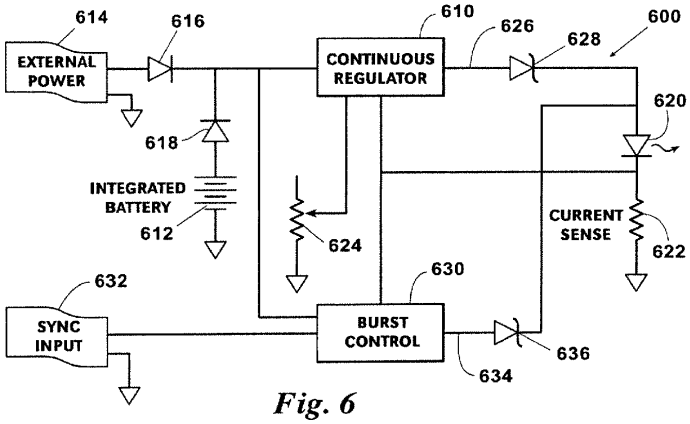


Fig. 6

(57) **Abstract**: A lighting apparatus comprises a light panel having a panel frame, and a plurality of LEDs or other light elements secured to the panel frame. The panel frame may be a portable frame. A self-contained battery unit securably attaches to the outside of the panel frame. The light panel may have a dimmer switch, and may also be capable of receiving power from a source other than the self-contained battery unit. The lighting apparatus can be mounted to a camera or a stand. The lighting apparatus may include an effects generator in communication therewith which generates a continuous light or a flash of light from the LEDs or other light elements. Diffusion lenses or color gels may be integrated with or detachable from the light panel.

WO 2011/103518 A1

PHOTOGRAPHY LED LIGHTING AND EFFECTS GENERATION SYSTEM

BACKGROUND OF THE INVENTION

1) Related Cases

This application claims the benefit of U.S. Provisional Patent Application serial number 61/306,433 filed on February 19, 2010 and incorporates said provisional application by reference into this disclosure as if fully set out at this point.

2) Field of the Invention

The field of the present invention relates to lighting apparatus and systems as may be used in photography, film, television, and other applications.

3) Background

Lighting systems are an integral part of the film and photography industries. Proper illumination is essential when filming movies, television shows, or commercials, when shooting video clips, or when taking still photographs, whether such activities are carried out indoors or outdoors. In some instances, an illumination effect may also be desired for live performances on stage or in any other type of setting.

Historically, camera systems were designed for either video or still photography. The associated lighting systems were likewise categorized such that lighting systems for film, television or video were not necessarily suitable lighting systems for still photography. The principal difference between such lighting systems is that lighting that is intended for video shines continuously once activated, whereas lighting for photography is pulsed (strobed, flashed, etc.) in synchronization with the shutter of a camera to take a picture.

The emergence of digital photography has changed the camera industry dramatically. However, corresponding changes in the lighting industry have been slow to appear. For example, advances in technology have substantially blurred the distinctions between still and video photography. Modern video cameras are equipped to capture still images. Likewise digital SLR cameras are now capable of professional quality video image capture. Photographers who are present at news and sporting events now can use a single camera to capture both still images and video (including HD video) that is suitable for use in print (or on-line) publications. The video obtained

by such cameras is suitable for use on broadcast television and/or for on-line access. Indeed, the video from such cameras is increasing being used in network and other news broadcasts in instances where there are no news crews on the ground and, thus, no other source of first person event coverage. However, the lighting system for such cameras is still wedded to separate systems for photograph and video. A need, therefore exists for a lighting system which is suitable for the demands of both video capture and still photography image capture.

In more particular, professional still photography has heretofore required the use of large lights that are situated on stands and that require access to a power supply that is most commonly supplied via a cord or cable. These lights and stands are typically heavy and require time to move into the studio and to position for a shoot. As a result spontaneous setup and use of such system is not feasible. This is particularly so in environments where spectators and others could trip over the cords/cables. Thus, a need also exists for a lighting and effects system which is portable and self powered to provide rapid setup, even in crowded environments.

A primary purpose of a lighting system is to illuminate a subject to allow proper image capture or achieve a desired effect. Often it is desirable to obtain even lighting that minimizes shadows on or across the subject. It may be necessary or desired to obtain lighting that has a certain tone, warmth, or intensity. It may also be necessary or desired to have certain lighting effects, such as colorized lighting, strobed lighting, gradually brightening or dimming illumination, or different intensity illumination in different fields of view.

Various conventional techniques for lighting in the film and television industries, and various illustrations of lighting equipment, are described, for example, in *Lighting for Television and Film* by Gerald Millerson (3rd ed. 1991), hereby incorporated herein by reference in its entirety, including pages 96-131 and 295-349 thereof, and in *Professional Lighting Handbook* by Verne Carlson (2nd ed. 1991), also hereby incorporated herein by reference in its entirety, including pages 15-40 thereof.

As one example illustrating a need for an improved lighting effects system, it can be quite challenging to provide proper illumination for the lighting of faces in still photography, especially for situations where close-up photographs are required. Often,

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 142 of 1082

certain parts of the face must be seen clearly. In addition, a need exists for such an effects lighting system that can be adapted for lightweight, battery powered operation as often required by still photographers.

The most common lighting systems in film, commercial, and photographic settings use either incandescent, fluorescent, or gas discharge light elements. However, conventional lighting systems have certain well known drawbacks or limitations which can limit their flexibility or effectiveness. Chief among their limitations are that because of their custom nature, both incandescent lighting systems and fluorescent lighting systems can be difficult to adapt to different or changing needs of a particular film project or shoot. For example, if the photographer decides that a different lighting configuration should be used, or wants to experiment with different types of lighting, it can be difficult, time-consuming, and inconvenient to re-work or modify the customized lighting setups to provide the desired effects. Furthermore, both incandescent lighting systems and fluorescent lighting systems are generally designed for placement off to the side of the camera, which can result in shadowing or uneven lighting.

A variety of lighting apparatus have been proposed for the purpose of inspecting objects in connection with various applications, but these lighting apparatus are generally not suitable for the movie, film or photographic industries. For example, U.S. Pat. No. 5,690,417, hereby incorporated herein by reference in its entirety, describes a surface illuminator for directing illumination on an object (i.e., a single focal point).

LED-based lighting apparatus have been developed for various live entertainment applications, such as theaters and clubs. These lighting apparatus typically include a variety of colorized LEDs in hues such as red, green, and blue (i.e., an "RGB" combination), and sometimes include other intermixed bright colors as well. These types of apparatus are not well suited for applications requiring more precision lighting, such as film, television, and so on. Among other things, the combination of red, green, and blue (or other) colors creates an uneven lighting effect that would generally be unsuitable for most film, television, or photographic applications. Moreover, most of these LED-based lighting apparatus suffer from a number of other

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 143 of 1082

drawbacks, such as requiring expensive and/or inefficient power supplies, incompatibility with traditional AC dimmers, lack of ripple protection (when connected directly to an AC power supply), inaccurate production of "white" light, and lack of thermal dissipation.

In the context of film and television, various attempts have been made to develop camera-mounted lighting fixtures; however, prior attempts to provide a suitable camera-mounted lighting fixture suffer from a variety of potential drawbacks. For example, conventional camera-mounted lighting fixtures using incandescent, gas discharge, or fluorescent lighting elements suffer from the same drawbacks as described above, and can cause undesirable shadowing or other side effects. Also, camera-mounted lighting fixtures which are designed to connect to the camera's battery can cause premature depletion of the battery. Other lighting fixtures are designed to be powered by a battery pack that is worn, typically on a belt, by the camera operator. Such battery belts are often heavy and cumbersome, and may require lengthy power cords that can interfere with camera maneuverability. Additionally, prior art camera-mounted light units have been proven to be a burning hazard since they are mounted in such close proximity to the camera operator and they can become very hot during operation. Accidental contact with the camera during operations or handling carries a risk of dealing a painful burn to the victim.

It would therefore be advantageous to provide a lighting apparatus or lighting effects system that is versatile and portable, and may find use in a variety of applications. It would further 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, that overcomes one or more of the foregoing disadvantages, drawbacks, or limitations.

SUMMARY OF THE INVENTION

Applicant incorporates herein by reference US Patent No. 7,429,117 as if fully set out at this point.

The invention is generally directed in one aspect to a novel and versatile lighting apparatus and effects generator. According to one embodiment as disclosed

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 144 of 1082

herein, a preferred lighting apparatus configuration comprises a light having a panel frame, with a plurality of semiconductor light elements, such as LEDs, secured to the panel frame. A self-contained battery unit may be attached to the panel frame. In some preferred embodiments the battery unit might be removable from the panel frame and in other embodiments it might be incorporated into (e.g., made a part of) the panel frame or the camera body. Additionally, it should be noted that the battery pack might be a single purpose or customized device suitable for a particular camera or a more conventionally it might be a compartment into which one or more standard batteries (e.g., A, AA, C, etc.) might be placed. When attached together, the light panel and self-contained battery unit function as an integrated lighting apparatus. Optionally, the light panel may have an integrated dimmer switch, and may also be capable of receiving power from a source other than the self-contained battery unit.

The instant lighting and effects apparatus may be mounted to a video or still camera, where the term "mounted" should be broadly construed to include instances where the lighting and effects apparatus are removably mounted as well as instances where the lighting apparatus is integral to the associated camera. Alternatively it may be mounted to a stand or tripod.

The lighting apparatus and effects generator of the instant invention is suitable for providing continuous illumination for a subject during video photography. The continuous illumination is also particularly suited as a modeling light for still photography. Furthermore, when a burst of light such as a flash or strobe is required, the lighting apparatus is capable of generating this required effect in a burst mode, preferably in synchronization with a shutter of a still or other camera. The lighting apparatus may also be dimmable in both the continuous or burst mode operation. As such, the lighting and effect generator of the present disclosure is suitable for video capture and/or still photography or the combination of both. In addition the light emitted may be shaped or color balanced as desired. Accordingly, continuous illumination is for modeling and a burst mode for flash or strobe is accomplished in the same light emitter in the same color balance (same quality of light).

The lighting and effects system of the present disclosure will also be preferably capable of providing aperture portion control. Additionally, the preferred

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 145 of 1082

embodiment of the instant lighting and effects system will be capable of F-stop control through an input signal to its microprocessor. Further, through the lens metering of the lighting device may be accomplished by a signal from the camera received by the microcontroller in the lighting and effects device. Color/brightness balance can thus be achieved.

Slave flashes will include self-contained electronic flash units that respond to external triggers of some kind. Among the sorts of triggers that would be suitable for use with the instant invention are radio frequency (RF) signals, infrared (IR) signals, and optical signals.

Optical slave flashes will be triggered by light. These embodiments have sensors that detect a light pulse from another flash device and then trigger immediately themselves. Since they respond so quickly, the time delay between the trigger flash and the slave flash does not affect the exposure of the photograph. Optical flash units historically had a problem in large gatherings where multiple flashes were present because an adjacent flash could also trigger the slave flash units. Manufacturers have addressed this problem by encoding the light bulbs so as to be immune from secondhand flashes. Others have addressed the problem through the use of IR or RF signals. The lighting and effects system of the present invention is particularly suited for use with such optical, IR or RF slave flash systems due to the lower power consumption and longer duration of these triggers over prior art flash technologies.

In various forms and embodiments, the lighting and effects generator of the present disclosure may be adapted for being mounted to a camera or a stand, and may include adapters for such a purpose. The lighting apparatus may also be provided with a diffusion lens or color gels, which may be integrated with or detachable from the lighting and effects generator. The lighting and effects generator may conveniently be provided in the form of a kit, with one or more of a light panel, self-contained battery unit, compact stand, connecting cable(s), adapter(s), lenses or color gels, and so on, being provided in a single package to allow flexibility and versatility to users in the field.

Further embodiments, variations and enhancements are also disclosed herein.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 146 of 1082

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates one environment in which the instant invention might be utilized.

FIG. 2 is a block diagram of a lighting effects system showing various components of a preferred system.

FIGS. 3A and 3B contain illustrations of different approaches to mounting a preferred embodiment of the instant invention on video and still cameras, respectively.

FIG. 4 is a diagram illustrating aspects of the lighting effect provided by a lighting assembly such as, for example, shown in FIG. 1.

FIGS. 5A and 5B are a block diagrams of two different types of electronic controllers as may be employed, for example, in the lighting effects system illustrated in FIG. 2.

FIG. 6 is a diagram that illustrates a preferred embodiment of the lighting system and effects generator of the present disclosure.

FIGS. 7A and 7B are diagrams of a lighting apparatus in accordance with one embodiment as disclosed herein.

FIGS. 8A and 8B are diagrams of the lighting apparatus in FIGS. 7A-B together with an attachable battery unit.

FIGS. 9A and 9B are diagrams showing attachment of the lighting apparatus in FIGS. 7A-B and 8A-B to the attachable battery unit of FIGS. 8A-B.

FIG. 10 is a diagram of one embodiment of a lighting effects system having at least two different lamp colors.

FIG. 11 is a diagram of another embodiment of a lighting effects system having at least two different lamp colors.

FIG. 12A is a diagram illustrating placement of a lens and optional color gel on the integrated light panel and battery apparatus of FIGS. 8A-B, and FIG. 12B is a side view diagram illustrating the lens in place.

FIG. 13 is a diagram showing one possible means for mounting an LED light panel to a camera.

FIG. 14 is a diagram illustrating attachment of mounting pin(s) to the lighting apparatus shown in FIGS. 7A-B.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 147 of 1082

FIG. 15 is another view of a diagram illustrating attachment of mounting pin(s) to the lighting apparatus shown in FIGS. 7A-B.

FIG. 16 is still another view of a diagram illustrating attachment of mounting pin(s) to the lighting apparatus shown in FIGS. 7A-B.

FIG. 17 is a diagram of a lighting array mounted atop a circuit board.

FIG. 18 is a functional block diagram illustrating circuits or components of an LED light panel in accordance with one embodiment as disclosed herein.

FIGS. 19A and 19B contain preferred operating logic flow charts that are suitable for use with the instant invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT(S)

Before describing preferred embodiment(s) of the present invention, an explanation is provided of several terms used herein.

The term "lamp element" is intended to refer to any controllable luminescent device, whether it be a light-emitting diode ("LED"), light-emitting electrochemical cell ("LEC"), a fluorescent lamp, an incandescent lamp, or any other type of artificial light source. The term "semiconductor light element" or "semiconductor light emitter" refers to any lamp element that is manufactured in whole or part using semiconductor techniques, and is intended to encompass at least light-emitting diodes (LEDs) and light-emitting electrochemical cell (LECs).

The term "light-emitting diode" or "LED" refers to a particular class of semiconductor devices that emit visible light when electric current passes through them, and includes both traditional low power versions (operating in, e.g., the 60 mW range) as well as high output versions such as those operating in the range of 1 Watt and up, though still typically lower in wattage than an incandescent bulb used in such application. Many different chemistries and techniques are used in the construction of LEDs. Aluminum indium gallium phosphide and other similar materials have been used, for example, to make warm colors such as red, orange, and amber. A few other examples are: indium gallium nitride (InGaN) for blue, InGaN with a phosphor coating for white, and Indium gallium arsenide with Indium phosphide for certain infrared colors. A relatively recent LED composition uses Indium gallium nitride (InGaN) with

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 148 of 1082

a phosphor coating. It should be understood that the foregoing LED material compositions are mentioned not by way of limitation, but merely as examples.

The term "light-emitting electrochemical cell" or LEC" refers to any of a class of light emitting optoelectronic devices comprising a polymer blend embedded between two electrodes, at least one of the two electrodes being transparent in nature. The polymeric blend may be made from a luminescent polymer, a sale, and an ion-conducting polymer, and various different colors are available. Further background regarding LECs may be found, for example, in the technical references D. H. Hwang et al, "New Luminescent Polymers for LEDs and LECs," Macromolecular Symposia 125, 111 (1998), M. Gritsch et al, "Investigation of Local Ions Distributions in Polymer Based Light Emitting Cells," Proc. Current Developments of Microelectronics, Bad Hofgastein (March 1999), and J. C. deMello et al, "The Electric Field Distribution in Polymer LECs," Phys. Rev. Lett. 85(2), 421 (2000), all of which are hereby incorporated by reference as if set forth fully herein.

The term "color temperature" refers to the temperature at which a blackbody would need to emit radiant energy in order to produce a color that is generated by the radiant energy of a given source, such as a lamp or other light source. A few color temperatures are of particular note because they relate to the film and photographic arts. A color temperature in the range of 3200° Kelvin (or 3200° K) is sometimes referred to as "tungsten" or "tungsten balanced." A color temperature of "tungsten" as used herein means a color temperature suitable for use with tungsten film, and, depending upon the particulars of the light source and the film in question, may generally cover the color temperature range anywhere from about 1000° Kelvin to about 4200° Kelvin. A color temperature in the range of 5500° Kelvin (or 5500° K) is sometimes referred to as "daylight" or "daylight balanced." Because the color of daylight changes with season, as well as changes in altitude and atmosphere, among other things, the color temperature of "daylight" is a relative description and varies depending upon the conditions. A color temperature of "daylight" as used herein means a color temperature suitable for use with daylight film, and, depending upon the particulars of the light source and the film in question, may generally cover the color temperature range anywhere from about 4200° Kelvin to about 9500° Kelvin.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 149 of 1082

Turning now to a first preferred embodiment, a lighting effects system is provided herein that comprises an arrangement of lamp elements on a panel or frame. The lamp elements may be embodied as low power lights such as light-emitting diodes (LEDs) or light emitting electrochemical cells (LECs), for example, and may be arranged on the panel or frame in a pattern so as to provide relatively even, dispersive light. The panel or frame may be relatively lightweight, and may include one or more circuit boards for direct mounting of the lamp elements. A power supply and various control circuitry may be provided for controlling the intensities of the various lamp elements, either collectively, individually, or in designated groups, and, in some embodiments, through pre-programmed patterns. Additionally, and according to the instant invention, this lighting effects system is capable of providing steading or continuous lighting and, upon demand, strobing, pulsing, or otherwise increasing the output of the lighting system relative to the continuous lighting level for use in, for example, digital photography.

In another embodiment, a lighting effects system comprises an arrangement of low power lights mounted on a frame having an opening through which a camera can view a lighted subject, and one or more mounting brackets for attaching the frame to a camera.. The low power lights may be embodied as LEDs or LECs, for example, arranged on the frame in a pattern of concentric circles or other uniform or non-uniform pattern. The low power lights may be electronically controllable so as to provide differing intensity levels, either collectively, individually, or in designated groups, and, in some embodiments, may be controlled through pre-programmed patterns. Again, and according to a preferred variation, this lighting effects system will be capable of providing continuous and pulsed lighting suitable for use in, for example, video and still photography applications. Note that "continuous lighting" should be broadly interpreted herein to include both lighting elements that truly emit light continuously as well as light sources that might appear to be continuous to the camera or the human eye even if they are in reality generated by a series of closely spaced (in time) light pulses (e.g., if the light is generated using pulse width modulation).

Figure 1 illustrates the general environment in which one preferred embodiment of the instant invention might be used. In some instances, a video camera

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 150 of 1082

105 might be directed toward a subject **110** that is being illuminated by inventive light **100**. The camera **105** of Figure 1, while illustrated as a motion picture-type camera, could be any type of image capture or optical viewing device, whether analog or digital in nature. For example, the camera **105** might use film, video tape, or solid-state image capture circuitry (e.g., CCDs) and may be a still photography camera, a motion picture camera, or some combination of the two.

As is illustrated in Figure 1, according to this embodiment the inventive light panel assembly **100** preferably utilizes a panel light frame **120** which is attached to a stand **125**. The panel light frame **120** may include multiple panel light sections **123, 124,** or may be a single unitary panel light. The stand **125** may be of a conventional nature, with a C-shaped yoke **130** for securing the panel light frame **120** crossbar and allowing it to tilt for directional lighting. A twisting handle **132** may be used to lock the panel light frame **120** at a particular angle. The C-shaped yoke **130** may be rotatable or pivotable by placement atop a fluid head **134**, which, in turn, is positioned atop a stem **136** and tripod **138**. The panel lighting assembly **100** thus conveniently provides a variety of directional lighting options for the panel light frame **120**.

In alternative embodiments, a ball and socket mechanism may be used to rotate or pivot an attached lighting panel, using socket joints similar to those used, for example, for computer monitors. Likewise, in any of the foregoing embodiments, motorization may be employed to control the movement of the lighting yokes or stand. Motorized controls are well known in the art for lighting apparatus (particularly in the performing arts field) and the motorized control may be either automated or manual in nature.

Figures 3A and 3B illustrate another preferred aspect of the instant invention. In some arrangements, the lighting device might be directly mounted on a camera as opposed to being stand-mounted. In Figure 3A, a preferred embodiment of the instant invention is shown mounted on a conventional video camera and in Figure 3B a similar example of the instant invention is shown mounted on a conventional SLR camera. As should be clear from these figures, embodiment **300** is designed to be mounted on a video camera **305** or digital still camera **310** and operate in conjunction therewith.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 151 of 1082

Although a panel-type configuration is preferred, other configurations of the instant invention are certainly possible and have been contemplated by the instant inventors (e.g., a ring-shaped embodiment with light sources around its periphery). That being said, Figure 4 illustrates one reason why a panel-type arrangement is preferred in many circumstances. Figure 4 illustrates the effect of the lighting frame assembly such as light frame **100** with light elements or lamps, collectively **320** generally arranged as shown in Figures 3A and 3B. If a panel-type lamp configuration is utilized, radiating light regions **420** and **421** from lamps arranged on the front surface of the lighting frame **100** will overlap one another in a manner so as to provide lighting from multiple angles. With an arrayed pattern of lamp segments, the subject **410** may be relatively evenly illuminated from every angle. The camera (including any type of image capture device, whether film-based, solid state/CCD, or otherwise) may be placed in any desired manner with respect to a lighting frame **100**.

Returning now to the general diagram of a lighting effects system **201** illustrated in Figure 2 (although the following comments will apply to various other embodiments such as the lighting assemblies shown in Figures 3A and 3B), the LEDs or other low power lamps **205** may be operated at a standard direct current (DC) voltage level, such as, e.g., 12 volts or 24 volts, and may be powered by a power source **210** controlled by a power controller **212** such as is generally shown in Figure 2. The power source **210** can generally comprise a standard electrical outlet (i.e., nominal 110 volt AC power line), although in various embodiments the power source **210** could also be a battery having sufficient current to drive the LEDs or other low power lamps **205**. In some embodiments, the power controller **212** may be omitted, and the lighting frame **202** may be connected directly to the power source **210**.

Block diagrams of two different types of power controllers **212** as may be used in various embodiments as described herein are illustrated in Figures 5A and 5B, respectively. With reference to Figure 5A, a first type of power controller **512** has an input for receiving an AC power source **503**, and outputs a plurality of power wires **547** preferably through a cable (e.g., cable **213** shown in Figure 2) for connection to the lighting frame **202**. The power controller **512** may further comprise a power converter **520**, the nature of which depends upon the type of power source **210**. If the power

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 152 of 1082

source is an AC source, the power converter **520** may comprise an AC-to-DC converter and appropriate step-down power conversion circuitry (e.g., a step-down transformer). On the other hand, if the power source is a DC source (e.g., a battery), the power converter **520** may comprise a DC-to-DC converter, if necessary. The design and construction of power converters is well known in the field of electrical engineering, and therefore is not be described herein in detail.

The power converter **520** is preferably connected to a plurality of switches **522**, which may be solid state devices (e.g., transistors) or analog devices (e.g., relays), each switch controlling power delivered by the power converter **520** to one of the wires **547** output by the power controller **512**. A switch selector **542** controls the on/off state each switch (or group) in the set of switches **522**. A manual interface **530** is provided to allow operation of the switches **522** according to manual selection. The manual interface **530** may include a master power switch **531**, switch controls **532**, and, optionally, an effects selector **533**. The switch controls **532** may include an individual manual switch, button or other selection means for each individual switch provided in the set of switches **522**, or else may comprise a control mechanism (such as knob or reduced number of manual switches, buttons or other selection means) for selecting groups of switches **522** according to predesignated arrangements. As but one example, assuming a light arrangement such as shown in Figure 3B (taken in combination with Figure 5A), a knob provided as part of the switch controls **532** could have a first setting to select all of the light segments **325, 330, 335, 340, 345, 350, 355, 360** thereby illuminating all **320** light elements, a second setting to select every other light segments **325, 335, 345** and **355**, and a third setting to select every fourth of light segment **325, 340, 360**, thus providing options of 100%, 50% and 25% total light output. The switch selector **542** would then convert each knob setting to a set of control signals to the appropriate switches **522**, which in turn would control power to the wires **547** supplying power to the light segments.

As another example, the switch controls **532** could include an individual manual switch, button or other selection means for each light segment **325, 330, 335, 340, 345, 350, 355** and **360** or group of light segments in the lighting arrangement.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 153 of 1082

An effects generator **543** (Figure 5A) may optionally be included in the power controller **512**, along with an effects selector **533** which forms part of the manual interface **530**. The effects generator **543** may provide the ability to create various lighting effects, such as, e.g., dimming, strobing, pulsation, or pattern generation. The effects selector **543** may affect all of the switches **522** simultaneously, or else may affect individual switches or groups of switches **522**, depending upon the desired complexity of the lighting effects. Dimming may be accomplished, for example, through a manual control knob or multi-position switch on the effects selector **533**. The dimming control may be electronically implemented, for example, in an analog fashion through a variable resistive element, or in a digital fashion by detecting the selected manual setting and converting it to selecting power setting through, e.g., selected resistive elements in a resistive ladder circuit or through a variable duty cycle delivered to the lights. Where the switches **522** are implemented, for example, as controllable variable amplifiers, the selectable resistance may be used to control the output of each amplifier and thereby the light output by the amplifier's respective light segment **325-360** (or group of light segments Figure 3B). In other embodiments, the dimming control may optionally be applied to the output of switches **522**. Where dimming control is applied collectively, it may be implemented by applying the selected dimming control level to the incoming signal from the power converter **520**, which is supplied to all of the switches **522** collectively. Other variations for implementing dimming control are also possible and will be apparent to those skilled in the art of electrical engineering.

Strobing may be accomplished by generating an oscillating signal and applying it as a control signal either upstream or downstream from the switch selector **542**. The frequency of oscillation may be selectable via a manual knob, switch or other selection means as part of the effects selector **533**.

Pattern generation may be accomplished by, e.g., manual selection from a number of predefined patterns, or else through an interface allowing different pattern sequencing. Patterns may include, for example, strobing or flashing different groups of light segments **325, 330, 335, 340, 345, 350, 355**, and **360** (given the example of Figure 3B) in a predefined sequence (which may be a pseudo-random sequence, if desired),

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 154 of 1082

strobing or flashing different light elements **320** of the light segments **325-360** in a predefined (or pseudo-random) sequence, gradually dimming or brightening light segments **325-360** (individually, in groups, or collectively), or various combinations of these effects.

Alternatively, rather than providing a separate effects selector **533**, certain effects may be combined with the switch controls **532**. For example, a dimmer switch (knob) **380** could be used to both activate a particular light segment (such as **340**), or group of light segments (such as **325, 340,** and **360**) and also control light output via rotation of the dimmer switch (knob) **380**.

Figure 5B is a block diagram showing another example of a power controller **552** as may be used, for example, in the lighting effects system **200** of Figure 2 or other embodiments described herein. Like the power controller **512** shown in Figure 5A, the power controller **552** shown in Figure 5B includes a power source input **553** connected to a power converter **560**. It further includes a set of switches **562** receiving power from the power converter **560**, and providing power to individual wires **597** which are conveyed, preferably by cable, to the lighting frame assembly **201** of the lighting effects system **200**. The power controller **552** also includes a switch selector **572**, which may comprise, for example, a set of registers which provide digital signals to the switches **562** to control their on/off state.

The power controller **552** includes a processor **574** which may be programmed to provide various lighting effects by manipulating the switch selector **572** (for example, by changing values in registers which control the on/off states of the switches **562**). The processor **574** may interface with a memory **575**, which may comprise a volatile or random-access memory (RAM) portion and a non-volatile portion (which may comprise, e.g., ROM, PROM, EPROM, EEPROM, and/or flash-programmable ROM), the latter of which may contain programming instructions for causing the processor **574** to execute various functions. The memory **575** may be loaded through an I/O port **576**, which may include an electrical serial or parallel interface, and/or an infrared (IR) reader and/or bar code scanner for obtaining digital information according to techniques well known in the field of electrical engineering and/or electro-optics. An interface **580** may also be provided for programming or otherwise

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 155 of 1082

interfacing with the processor **574**, or manually selecting various lighting effects options through selectable knobs, switches or other selection means, as generally explained previously with respect to Figure 5A. The processor-based control system illustrated in Figure 5B may also include other features and components which are generally present in a computer system.

In operation, the processor **574** reads instructions from the memory **575** and executes them in a conventional manner. The instructions will generally cause the processor **574** to control the switch selector by, e.g., setting various digital values in registers whose outputs control the switches **562**. The programming instructions may also provide for various lighting effects, such as dimming, strobing, pulsation, or pattern generation, for example. To accomplish dimming, the processor **574** may be programmed select binary-encoded values to load into registers of the switch selector **572,** which in turn select a variable resistance value which controls the output from each individual or group of switches **562**. To accomplish strobing, the processor **574** may be programmed to turn the switches **562** on and off according to a predesignated pattern dictated by the programming instructions. The processor **574** may make use of one or more electronic timers to provide timing between on and off events. The programming instructions may provide that the switches **562** are turned on and off according to designated sequences, thus allowing the capability of pattern generation via the processor **574**. As mentioned before, patterns may include, for example, strobing or flashing all or different groups of light segments **325-360** (given the example of Figure 3) in a predefined (or pseudo-random) sequence, strobing or flashing different low power lamps **320** of the light segments **325-360** in a predefined (or pseudo-random) sequence, gradually dimming or brightening the light segments **325-360** (individually, in groups, or collectively), or various combinations of these effects is contemplated. Predefined (or pseudo-random) sequence, gradually dimming or brightening the lamps **320** (individually, in groups, or collectively), or various combinations of these effects is contemplated.

Turning next to Figure 6 which illustrates a preferred embodiment of the instant lighting and effects system, continuous regulator **610** receives power from either battery **612**, or optionally through external power connector **614**. Preferably diodes **616**

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 156 of 1082

and **618** essentially "or" the power from either source **612** or **614** such that the source with the highest voltage will provide the power to regulator **610**. Diodes **616** and **618** further preferably provide reverse voltage protection such that an inadvertent insertion of battery **612** or application of reversed voltage at connector **614** will not damage regulator **610**.

In a preferred arrangement, regulator **610** selectively regulates the current through LED array by measuring the voltage across current sense resistor **622**. Potentiometer **624** provides a selectable reference to regulator **610** to set the level at which the LED current will be regulated.

Preferably regulator 610 is a switch mode regulator which will provide true direct current to LED array **620**. One such device suitable for the present invention is Model TPS 61165 manufactured by Texas Instruments of Dallas, Texas. However, a linear regulator would also work satisfactorily, albeit perhaps at a somewhat lower efficiency. Alternatively, regulator **610** could employ pulse width modulation to accomplish dimming.

To obtain a flash of light from LED array **620**, in the preferred embodiment a burst control circuit **630** is provided. Typically, circuit **630** will maintain a reservoir of electrical energy at a voltage somewhat higher than the output **626** of regulator **610** when a sync pulse, or switch closure, is provided at sync input **632**. When burst circuit **630** detects a sync pulse, the stored energy is provided at output **634**, preferably for a predetermined period of time causing LED array **620** to produce a flash of light. In one preferred embodiment, the energy stored by circuit **630** is a known quantity which will drive LED array **620** in a known manner, by way of example and not limitation, perhaps at eight times its maximum continuous current. Alternatively, burst control circuit may use feedback from current sense resistor **622** to control the current during the flash duration.

In a preferred embodiment, diode **628** prevents the burst output **634** from adversely affecting regulator **610** and diode **636** prevents the output of regulator **610** from adversely affecting circuit **630**.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 157 of 1082

Figures 3, 4, 7A and 7B are diagrams of a lighting apparatus **700** in accordance with one or more embodiments as disclosed herein. The lighting apparatus **700** is preferably portable and versatile in nature, as further described herein. The lighting apparatus **700** in this example includes a panel, fixture or frame (hereinafter "panel") **702** having a plurality of semiconductor light elements (such as LEDs or LECs) 4705 mounted on a mounting surface **704** of the panel **702**. Note that for purposes of the instant disclosure, a surface mount semiconductor light element is any LED (semiconductor light element) that does not have leads for through hole mounting. Persons of ordinary skill in the art will readily understand the meaning of "through hole" as that term is used in the semiconductor industry.

As illustrated in Figure 7A, the semiconductor light elements **705** may be disposed in uniform arrays to provide a broad light source. The mounting surface **704** may include one or more circuit board assemblies, generally constructed in accordance with the principles described with respect to Figure 17. Although the semiconductor light elements **705** are illustrated as being arranged in uniform arrays, they may be arranged in other patterns as well. Furthermore, while the panel **702** is shown as being generally rectangular in shape, the panel **702** may alternatively be of any suitable shape, including, for example, hexagonal, octagonal, or other polygonal or semi-polygonal, or round, oval, square, or ring-shaped.

The semiconductor light elements **705** may be surface mounted or through hole. The light elements or LEDs may have screw-in bases or other similar physical attachment means, such that the LEDs can be easily removed and replaced.

The panel **702** may further include an integrated dimmer control **726**, in the form of a knob, switch, or other mechanism, to allow the intensity of the semiconductor light elements **705** to be adjusted. As one example of an implementation, a dimmer control **726** (e.g., in the form of a manual knob) may control the conductance of a potentiometer or variable resistor, to adjust the amount of current reaching the semiconductor light elements **705**. More than one dimmer control **726**, and/or switches, may optionally be provided, so as to control groups of semiconductor light elements **705**, for example, or to turn on or off certain groups of the semiconductor

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 158 of 1082

light elements **705**. An example of electronic circuitry as may be used in connection with dimmer control **726** is described with respect to Figure 18.

As illustrated in Figure 7B, the panel **702** may include a socket **724** or other input for receiving a power connection (e.g., cable) to provide electrical power to the semiconductor light elements **705**. The panel **702** may also include various heat dissipating fins **712**, which may be arranged, for example, in arrays of metal or heat conductive rods, integrated on the back side of the panel **702**, in order to efficiently dissipate heat generated by the semiconductor light elements **705**. The heat dissipating fins **712** may generally be similar to those described elsewhere herein, for example, with respect to Figure 8A. The heat dissipating fins **712** may be of any suitable size or shape, and may be extended, for example, to accommodate higher wattage LEDs or light elements. Other types of heat dissipation mechanisms may also be used.

The lighting apparatus **700** of Figures 8 and 9 may be particularly adapted to receive an attachable/detachable battery unit, so as to provide a power source. Figures 8A and 8B are diagrams of a panel-based lighting apparatus **802** such as illustrated in Figures 7A-B, together with an attachable battery unit **830**, to form a self-contained, self-powered lighting apparatus **800**. The battery unit **830** may be attachable to the panel **802** in any of a variety of manners. In the particular example shown in Figures 8A and 8B, the battery unit **830** comprises a set of struts **832** that attach to corresponding receptacles **836** of the panel **802**. Figure 8A shows a perspective view of the light panel **802** and battery unit **830** slightly separated, while Figure 8B shows a side view of them attached to one another, with the struts **832** inserted in the receptacles 4836 of the panel 4802. Figures 9A and 9B are diagrams showing attachment of the light panel 4802 to the attachable battery unit **830**. Figure 9A in particular is a simplified diagram omitting certain details such as the heat dissipating fins.

A wide variety of alternative means may be used to attach the battery unit **830** to the panel **802**; by way merely of example, the battery unit **830** may slidably attach and engage with the panel **802**, or may have external tabs that grip the panel **802**, or may have pins or screws that engage with the panel **802**.

The battery unit **830** preferably delivers power to the light panel **802** through an electrical connector **840**, which may take the form of, e.g., a jumper cord, and may

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 159 of 1082

insert into electrical sockets **834** (in the battery unit **830**) and **824** (in the panel **802**). Alternatively, the front side of the battery unit **830** and backside of the panel **802** may be provided with a mating male/female electrical plug and socket, which automatically engage when the battery unit **830** is attached to the panel **802**. As with the lighting apparatus **700** of Figures 7A-B, a dimmer switch **826** may be provided in a convenient location on the panel **802**, to adjust the light intensity. One or more batteries, possibly replaceable, may be integrated with battery unit **830**. The battery, or batteries, may have a nominal voltage rating of appropriate level, such as 12 volts. The battery, or batteries, of battery unit **730** is/are preferably rechargeable in nature.

Each of the lamp segments **325-360** preferably comprises a plurality of low power lamp elements **320**, such as illustrated, for example, in Figure 3B. The low power lamps are preferably solid state in nature and may comprise, for example, light-emitting diodes (LEDs), light-emitting crystals (LECs), or other low power, versatile light sources. Slight color variations may be added relatively easily to the lenses of LEDs to compensate for color deficiencies without significantly impacting the overall light output. Colored LED lenses may also be used to generate a desired color (such as red, green, etc.), but, since colored lenses are subtractive in nature, the stronger the color, generally the more the output of the LED will be dimmed. White LEDs typically utilize clear or nearly clear lenses; however, in any of the embodiments described herein, a clear LED lens may be manufactured with slight subtractive characteristics in order to minimize any color spikes and/or non-linearities in the output of an LED.

The lighting apparatuses of Figures 10 and 11 may, if desired, be physically embodied in a manner as described elsewhere herein. For example, the lighting apparatus may be embodied in a portable frame such as that generally illustrated in and/or described with respect to Figures 3, 7, 8, etc. The principles and underlying concepts associated with the embodiments of Figures 10 and 11 may be extended to support more than two colors of lamp elements **320** or **705**. Moreover, the lighting apparatuses of Figures 10 and 11 may utilize any number of lamp elements in a bi-color or other multi-color arrangement in pattern.

Various embodiments of lighting apparatus as described herein utilize different color lamp elements in order to achieve, for example, increased versatility or

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 160 of 1082

other benefits in a single lighting mechanism. Among the various embodiments described herein are lamp apparatuses utilizing both daylight and tungsten lamp elements for providing illumination in a controllable ratio. Such apparatuses may find particular advantage in film-related applications where it can be important to match the color of lighting with a selected film type, such as daylight or tungsten.

Alternatively, or in addition, lamp elements of other colorations may be utilized. It is known, for example, to use colored lamp elements such as red, green, and blue LEDs on a single lighting fixture. Selective combinations of red, green, and blue ("RGB") lamp elements can generally be used to generate virtually any desired color, at least in theory. Lighting systems that rely upon RGB lamp elements can potentially used as primary illumination devices for an image capture system, but suffer from drawbacks. One such problem is that the red, green, and blue colors generated by the light elements do not necessary mix completely. The discrete RGB lamp elements (e.g., LEDs) each project a localized "pool" of its individual primary color. This manifests as spots of color, or bands of individual or partially mixed colors. One of the presently available solutions to correct for this problem is mixing the colors using a diffusion technique. Diffusion mixing can be accomplished by adding defractors, gratings, or white opal-appearing filters, for example. Unfortunately, these techniques end up reducing the overall output of the lighting apparatus and, more importantly, severely reduce the ability of the LEDs to "project" light in a direct fashion. Another problem for illumination systems which rely upon RGB color mixing is that not all of the LEDs are generally used at full power for most lighting situations. One or two of the LED color groups typically have to be dimmed in order for the desired color to be generated, which can further reduce the overall light output. When these factors are considered in combination, RGB based lighting apparatus may not be well suited for providing primary illumination for image capture applications (such as film).

While the foregoing discussion has principally focused on RGB based lighting apparatus, similar problems and drawbacks may be experienced when employing lamp elements in other color combinations as well.

In various embodiments as disclosed herein, a lighting apparatus is provided which utilizes two or more complementary colored lamp elements in order to achieve a

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 161 of 1082

variety of lighting combinations which, for example, may be particularly useful for providing illumination for film or other image capture applications. A particular example will be described with respect to a lighting apparatus using lamp elements of two different colors, herein referred to as a "bi-color" lighting apparatus. In a preferred embodiment, the bi-color lighting apparatus utilizes light elements of two different colors which (unlike red, green, and blue) are separated by a relatively small difference in their shift or color balance. When reference is made herein to light elements of two different colors, the light elements may, for example, include a first group which provide light output at a first color and a second group which provide light output at a second color, or else the light elements may all output light of a single color but selected ones of the light elements may be provided with colored LED lenses or filtering to generate the second color. In a preferred embodiment, as will be described, the bi-color lighting apparatus uses lamp elements having daylight and tungsten hues (for example, 5200° K and 3200° K color temperatures, respectively). Other bi-color combinations may also be used and, preferably, other combinations of colors which are closely in hue or otherwise complementary in nature.

One possible advantage of a bi-color lighting system as will be described in certain embodiments below is the ability to more easily blend two similar colors (e.g., 5500 K and 3200 K color temperature hues), particularly when compared to a tri-color (e.g., RGB) lighting system that relies upon opposing or widely disparate colors. The blending process of two similar colors is not nearly as apparent to the eye, and more importantly in certain applications, is a more suitable lighting process for film or video image capture devices. In contrast, attempting to blend 3 primary or highly saturated (and nearly opposite colors) is much more apparent to the eye. In nature one may visually perceive the blending of bi-colors, for example, from an open sky blue in the shade, to the warmth of the direct light at sunset. Such colors are generally similar, yet not the same. Their proportion in relation to each other is a naturally occurring gradient in most every naturally lit situation. This difference is the basis of most photographic and motion picture lighting hues. These hues give viewers clues as to time of day, location and season. Allowing separate control of the two different color lamp elements (such as LEDs), through two separate circuit/dimmer controls or otherwise, provides

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 162 of 1082

the ability to easily adjust (e.g., cross-fade, cross-dim, etc.) between the two colors because they do not have significant color shifts when dimmed and blend in a visually pleasing manner, allowing the type of color gradients that occur in nature. In addition, virtually all still and motion picture film presently used in the industry is either tungsten or daylight balanced, such that various combinations of daylight and tungsten (including all one color) are well matched directly to the most commonly used film stocks. These features make various of the lighting apparatus described herein particularly well suited for wide area still, video, and motion picture usage, especially as compared to RGB-based or other similar lighting apparatus. The above principles may also be extended to lighting systems using three or more lamp element colors.

Figure 10 is a block diagram of one embodiment of a lighting effects system **1000** having at least two different lamp element colors. As illustrated in Figure 10, the lighting effects system **1000** comprises a lighting frame mounting surface **1002** having a plurality of lamp elements **1005** which, in this example, include daylight LEDs **1004** and tungsten LEDs **1003**, although different lamp elements and/or different colors could be chosen. The lighting effects system **1000** further comprises various control electronics for controlling the illumination provided by the lamp elements **1005**. In particular, the lighting effects system **1000** comprises an intensity control adjustment **1042**, an intensity control circuit **1045**, a ratio control adjustment **1041**, and a ratio control circuit **1046**. The intensity control adjustment **1042** and ratio control adjustment **1041** may each be embodied as, e.g., manual control knobs, dials, switches, or other such means, or alternatively may be embodied as a digital keypad, a set of digital buttons, or the like. A visual display (not shown) such as an LCD display may be provided to allow the operator to view the settings of the intensity control adjustment **1042** and ratio control adjustment **1041**. Alternatively, the ratio control adjustment **1041** and/or intensity control adjustment **1042** may comprise digital commands or values received from a computer or similar device.

In operation, setting the intensity control adjustment **1042** selects the illumination level for the lamp elements **1005**, while setting the ratio control adjustment **1041** selects the relative intensities between, in this example, the daylight LEDs **1004** and the tungsten LEDs **1003**. The intensity control circuit **1052** and ratio control circuit

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 163 of 1082

1046 may comprise analog and/or digital circuitry, and the output of the ratio control circuit **1046** modifies the incoming power supply separately for the daylight LEDs **1004** and the tungsten LEDs **1003** in a manner dictated by the setting of the ratio control adjustment **1041**. Accordingly, by use of the ratio control adjustment **1041**, the operator may select more daylight illumination by increasing the relative intensity of the daylight LEDs **1004** or may select more tungsten illumination by increasing the relative intensity of the tungsten LEDs **1003**. To increase or decrease the overall light output intensity, the operator may adjust the intensity control adjustment **1042**. The lighting effects system **1000** thereby may provide different combinations of daylight/tungsten coloration to match a wide variety of settings and circumstances, with the two colors being generally complementary in nature and thus providing a balanced, well blended illumination effect.

Figure 11 is a diagram of another embodiment of a lighting effects system having at least two different lamp colors. As illustrated in Figure 11, and similar to Figure 10, the lighting effects system **1100** comprises a lighting frame mounting surface **1102** having a plurality of lamp elements **1105** which, in this example, include daylight LEDs **1104** and tungsten LEDs **1103**, although different lamp elements and/or different colors could be chosen. The lighting effects system **1100**, as with that of Figure 10, further comprises various control electronics for controlling the illumination provided by the lamp elements **1105**. In particular, the lighting effects system **1100** comprises individual intensity control adjustments **1151**, **1152** for daylight and tungsten lamp elements (e.g., (LEDs) **1103**, **1104**, and individual intensity control circuits **1156**, **1157** also for the daylight and tungsten LEDs **1103**, **1104**. The tungsten intensity control adjustment **1151** and daylight intensity control adjustment **1152** may, similar to Figure 10, each be embodied as, e.g., manual control knobs, dials, switches, or other such means, or alternatively may be embodied as a digital keypad, a set of digital buttons, or the like. A visual display (not shown) such as an LCD display may be provided to allow the operator to view the settings of the two intensity control adjustments **1151**, **1152**. Alternatively, the intensity control adjustments **1151**, **1152** may comprise digital commands or values received from a computer or similar device.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 164 of 1082

In operation, setting the tungsten intensity control adjustment **1151** selects the illumination level for the tungsten LEDs **1103** via the tungsten intensity control circuit **1156**, and setting the daylight intensity control adjustment **1152** selects the illumination level for the daylight LEDs 3404 via the daylight intensity control circuit **1157**. The relative settings of the tungsten intensity control adjustment **1151** and the daylight intensity control adjustment **1152** generally determine the relative intensities between, in this example, the daylight LEDs **1104** and the tungsten LEDs **1103**. The intensity control circuits **1156**, **1157** may comprise analog and/or digital circuitry, and the relative outputs of the tungsten intensity control circuit **1156** and the daylight intensity control circuit **1156** generally determine the illumination level and composition. The operator may select more daylight illumination by increasing the relative intensity of the daylight LEDs **1104** or may select more tungsten illumination by increasing the relative intensity of the tungsten LEDs **1103**. The lighting effects system **1100** thereby may provide different combinations of daylight/tungsten coloration to match a wide variety of settings and circumstances, as with the Figure 10 embodiment.

Because the two different colors of LEDs (e.g., daylight and tungsten) can be controlled separately (through common or separate circuitry), and because these particular LEDs, or other similar complementary colors, do not have significant color shifts when dimmed, it would be relatively straightforward to adjust (e.g., cross-fade, cross-dim) between the two colors and, for example, provide a variety of natural light illumination effects for various types of common film stock.

[0091] According to one or more embodiments as disclosed herein, a versatile lighting apparatus in the form of an LED-based light panel is provided, preferably having a variety of mounting options or configurations, an attachable or integrated battery unit, and alternative means for receiving a power supply input. In a preferred embodiment, the versatile LED-based light panel includes a panel frame, and a plurality of LEDs or other light elements secured to the panel frame. A self-contained battery unit securably attaches to the outside of the panel frame. The light panel may have a dimmer switch, and may also be capable of receiving power from a source other than the self-contained battery unit. The lighting apparatus can be mounted to a camera or a

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 165 of 1082

stand through adapters. Diffusion lenses or color gels can be integrated with or detachable from the light panel. The lighting apparatus may conveniently be provided in the form of a kit, with one or more of a light panel, self-contained battery unit, compact stand, connecting cable(s), adapter(s), lenses or color gels, and so on, provided in a single package.

[0092] It is contemplated that the lighting and effects generator of the present disclosure could, due to its size and weight, be transported quickly and easily by a photographer to a location and rapidly setup to produce a lighting and effects system which provides continuous source of illumination for modeling and video capture as well as pulse, flash or strobe boost illumination for still photography. Such a system capable of being battery powered would not require cabling and thus could be used in crowded areas without a concern of someone tripping over cables. A portable and therefor spontaneous battery powered, cordless, LED studio can be set up at any desired location.

[0093] A diffusion lens or filter may also be used, by itself or in conjunction with a color gel or colored lens, to diffuse or soften the outgoing light. A diffusion lens or filter may be formed of, e.g., clear or white opaque plastic, and may be configured in a shape of similar dimension to the panel **702** or **802** to facilitate mounting thereon. One such diffusion filter **1229** is shown in Figure 12A. A preferred diffusion filter/lens would be a Light Shaping Diffusor material (e.g., holographic, etc.). A color correction mechanism, such as a lens filter and/or color gel, may be used to alter the color of the light elements of a lighting apparatus such as depicted in Figures 7A-B or 8A-B. For example, LED light sources could, if necessary, be converted to "tungsten daylight" (similar in hue to an incandescent bulb) by use of a color gel and/or colored lens.

[0094] The lighting apparatuses **700** and **800** are preferably adapted to be utilized in conjunction with various lenses and/or color gels, to increase their versatility. Figure 12A is a diagram illustrating one embodiment having a lens **1210** and optional color gel **1229** used with the lighting apparatus **800** illustrated in Figures 8A-B, and Figure 12B is a side view diagram illustrating the lens **1220** in place. The lens **1210** is preferably readily attachable to the panel **802** of the lighting apparatus **800**, by fastening means such as complementary Velcro patches **1222**, **1212**. Alternatively, the lens **1210** could

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 166 of 1082

snap or slide on to the panel **802**, or be attached using screws, nuts/bolts, pins, or other such means. The filter/lens **1210** (as with 6327, described later herein) may comprise, e.g., a Fresnel lens, a holographic lens, or any other type of lens, or combinations thereof. The color gel **1229** is preferably inserted beneath the lens **1210** and is secured beneath it. As depicted in Figure 12A, the color gel **1229** has cutouts on each of the corners so as not to interfere with the Velcro patches **1222**, **1212**.

[0095] The lighting apparatus **700** is preferably portable in nature and can be adapted for use in a variety of ways. To facilitate mounting of the lighting apparatus **700** (whether or not attached to a battery unit, as depicted in Figures 8A-B), the lighting apparatus **700** may be provided with one or more adapters. Figure 59 is a diagram illustrating an example of a lighting apparatus **700** in the form of a panel **702** with one or more adapters 5906, 5907 for mounting or affixing the panel **702** to a camera, stand, or other object or surface. In the example depicted in FIG. 59, the adapters 5906, 5907 are in the form of receptacles suitable for receiving a mechanical pin (or a similar fastener such as a screw or bolt), allowing convenient and rapid deployment of the lighting apparatus **700** on, e.g., a camera or stand. Other adapters or fastening means (e.g., hinged tabs, sliding/coupling members, etc.) may also be used.

[0096] Examples of ways in which the light apparatus **700** can be mounted on a camera, stand or other object or surface are illustrated in at least Figures 1, 3, 4, etc.. For example, the lighting apparatus **700** may be mounted to a camera, directly to the camera housing or to an arm attached to the camera housing. Figure 1A is a diagram showing one possible mechanism for mounting a lighting apparatus **700** in the form of a light panel to a camera **1307**. While the description below is explained in terms of lighting apparatus **700**, it also applies to the lighting apparatus **800** having an attachable battery unit, as well as other possible lighting apparatuses as well. In Figure 13, the camera **1307** includes or is configured with an attachment arm **1310** which may be used for mounting the lighting apparatus **700**.

[0097] Figures 14 through 16 are diagrams illustrating other attachment options, using various mounting pins, in connection with the lighting apparatus **700** of Figures 7A-B. Figure 14, for example, illustrates a mounting pin 1410 that may be used to allow the lighting apparatus **700** to attach to a stand or tripod.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 167 of 1082

[0098] Figure 16 illustrates attachment of the lighting apparatus **700** to a mounting pin 1410 similar to that shown in Figure 14, but in this instance being coupled to an adapter on the narrow side of the lighting apparatus **700** instead of its long side.

[0099] In Figure **15**, the lighting apparatus **700** is attached to a stand or camera using a mounting pin 1450. The mounting pin 1450 in this example also includes a threaded pin 1469 and a cylindrical body 1462. In this case, the mounting pin 1450 may have a T-bar 1459 that is securably attached to the cylindrical body 1462, or else fits into a hollow receptacle to secure it to the cylindrical body 1462 of the mounting pin 1450, thereby allowing it to slide onto a camera having curved fins or other members for receiving the wings of the T-bar 1459. The mounting pin 1450 may alternatively have a pin, receptacle, or other member for mounting into a camera shoe or a stand, thus securing the lighting apparatus **700** to the camera or stand.

[0100] Various options and accessories as may be used in connection with the lighting assembly frame. The lighting frame may be augmented with a diffusion filter and/or a color filter which may, if desired, be secured into place through a cover (e.g., a clear plastic cover) which locks or snaps onto the lighting frame. Similar accessories may be utilized, for example, in connection with the lighting frame **302** illustrated in Figures 3 and 4. Illustrations of filtering techniques, through the use of waveguides and other means, are described, for example, in U.S. Pat. Nos. 6,272,269 and 6,270,244, both of which are incorporated by reference herein in their entirety.

[0101] It will be appreciated that, in various embodiments, a flexible, lightweight and functional lighting effects system is provided, whereby relatively uniform light may be used in illumination of a subject or area. The lighting effects system may, in various embodiments, allow a lighting frame to be secured to a camera or other image capture device, so as to permit the lighting system to be mobile and move in tandem with the camera or other image capture device, if desired. Also, in various embodiments, the lighting effects system may provide a variety of lighting patterns, including programmable patterns by which individual or groups of lights can be controlled for different lighting effects. The lighting frame may, in certain instances, be formed in multiple sections and hinged to allow the lighting frame to fold, or else snapped apart section by section, for ease of transport.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 168 of 1082

[0102] The light and effects generator of the present disclosure may be adapted for implementation into a soft box. This would allow for the projection of a soft light deep into a subject. The advantages of such a soft light embodiment include all of the known advantages of a soft box such as the use of diffusion and control of the light with little light loss.

[0103] The particular advantages of the light and effects generator of the present disclosure implemented in a soft box include the fact that the LED light array generates less heat than conventional systems and particularly the fact that it provides a large light source with a flash with minimal feature depth. This is particularly significant for overhead lighting applications or anywhere where space is a factor in light placement.

[0104] In addition, a light of the present disclosure in a soft box could also include lensing and/or multi lensing. Contiguous lensing could be provided to create a seamless light source over the entire face of the light. Such light could then be projected deep into a subject for photography.

[0105] Another aspect of the light and effects generator of the present disclosure is that when coupled with a camera, it is possible to use the camera as a light meter without the requirement of an additional light meter. In this way, a color chart, well known in photography is used in view of the camera. A test shot is then performed using the color chart. The lighting information matching the color chart is then transferred directly to the light of the present disclosure to balance the color. This information is transferred in a communication either wired or wireless communication between the camera and the microcontroller in the light. In this way color brightness control may be achieved as well as the depth of the lighting and changes of color in relation to depth.

[0106] In various alternative embodiments, the lighting frame need not be shaped as shown in Figures 1, 3, 4, etc. For example, the lighting frame may be round, square, hexagonal, octagonal, or other polygonal, or could, for instance, have a partially polygonal shape. Preferably, the lighting frame is relatively thin, as compared to its overall size, although it need not be. Also, the lighting frame preferably has a hole generally centered therein to allow a camera or other image capture device to view through the frame, although in some embodiments a viewing hole may not be present.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 169 of 1082

The exterior portion of the lighting frame, or at least the exterior portion thereof, is preferably made of a lightweight, durable material such as plastic and/or lightweight metal (e.g., aluminum), optionally anodized, although in various embodiments it can be made of other materials as well, including any type of metal, wood, plastic, or combination thereof. The interior lighting frame portion may advantageously comprise a printed circuit board.

[0107] Other variations may pertain to the manner of attaching the lighting frame to a camera or other image capture device. Rather than using a single mounting bracket or assembly, for example, multiple mounting brackets or assemblies may be used. Also, the mounting bracket or assembly may be permanently attached or affixed to the lighting frame, and may be, for example, retractable or foldable for convenience of transportation. The lighting frame may attach either to the camera body or to the lens portion of the camera. The lighting frame may attach to the camera lens through any of a variety of means, such as by engaging an outer camera lens threading through a threading on the interior circular hole of the lighting frame, engaging an inner camera lens threading by providing a complementary threaded extension for that purpose, by a strap means to secure the lighting frame to the camera and/or stand, or by a "hose-clamp" type strap which grips the outer cylinder of the camera lens. Also, rather than attaching to the camera, the lighting frame may be portable, and may be outfitted with handles for lighting crew to manually carry or hold the lighting frame, or may be adapted to attach to a stand or fixture for providing stationary illumination. The lighting frame may also be adapted to attach to a machine arm or other contrivance for allowing the lighting effects system to be moved as needed for filming or other desired purposes.

[0108] Further embodiments, variations, and modifications pertain to the type of lamp elements that may be utilized in a lighting effects system and/or the manner of constructing a lighting frame particularly well suited for placing numerous lamp elements thereon. One method of construction involves the use of surface mount LEDs. A surface mount LED may have a lens atop the body that directs the light generated by the surface mount LED outwards. While the body and the lens of the surface mount LED may radiate heat, its tabs as well as the thermal shoe on the bottom surface assist in conducting heat to the mounting surface (e.g., circuit board) and thus

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 170 of 1082

may provide advantageous heat dissipation capabilities, particularly as compared to non-surface mount LEDs which tend to dissipate heat typically through their leads. Use of surface mount LEDs provides a larger and more direct heat conduction path to the mounting surface (e.g., circuit board), and may also provide advantages in ease of fabrication and improved durability.

[0109] In various embodiments as described herein, the lamp elements used in a lighting effects system or lighting apparatus may comprise high output semiconductor lights such as, for example, high output LEDs. Such high output LEDs are available from Lumileds Lighting, LLC of San Jose, Calif. under the product brand name Luxeon.TM.. High output LEDs are presently available in white as well as colors such as green, blue, red, amber, and cyan, are fully dimmable, and generally operate at about one to several Watts (e.g., 5 Watts), outputting in certain devices approximately 24 or more lumens per Watt. The high output LEDs may be mounted upon, e.g., a metal printed circuit board (PCB) such as an aluminum core circuit board. High output LEDs may be used in connection with any of the embodiments previously described herein, and may provide advantages of increased lighting output with fewer lamp elements and, hence, reduced cost of construction in certain cases. However, the driving circuitry for the high output LEDs would generally need to have a higher output rating than the circuitry used for lower power LEDs.

[0110] Figure 17 is a generalized diagram of an array of LEDs **1602** mounted atop a circuit board **1604**, as may be used in various embodiments as described herein. The circuit board **1604** may comprise rigid fiberglass or phenolic planes with electrically conductive tracks etched on them, and/or may be metallic in nature (such as aluminum core PCBs). The term "circuit board" as used herein is meant to encompass the foregoing structures as well as various other types mounting apparatus, including flexible electrical interconnects such as conductive membranes made on thin Mylar, silicone, or other similar materials. The surface mount LEDs **1602** may be connected together in series and/or in parallel by electrical traces **1603** on the circuit board **1600**. While the LEDs **1602** are illustrated in Figure 17 as being in a straight-line array, other LED patterns may also be utilized. As previously mentioned, the tabs and thermal shoe

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 171 of 1082

on the bottom each of the surface mount LEDs 1602 generally assist in conducting heat to the circuit board 1604, thus providing advantageous heat dissipation capabilities.

[0111] A lighting apparatus may conveniently be packaged in the form of a kit that includes a number of components providing increased convenience, flexibility, and adaptability to operators in the field. For example, a lighting apparatus kit may include one or more lighting panels **702**, as well as one or more battery units **830** (and/or battery adapters such as described previously herein), power jumper cable (for connecting the power between the panel(s) **702** and battery unit(s) **830**, an AC adapter and power/recharging cable, one or more lenses **1210**, a set of colored or diffusion gels **1259** of various tints and hues, or providing light shaping or diffusion (such as with a Fresnel lens or holographic lens), and/or one or more compact mounting stands (or other accessories described herein), all of which can be packaged conveniently in a portable case. The colored or diffusion gels may be integrated with a panel, or else detachable.

[0112] The lighting apparatus and/or battery unit may have electronics which also provide increased performance, versatility, and/or flexibility.

[0113] Figure 18 is a functional block diagram illustrating an example of circuits or components of an LED-based light panel **1800**, as may be constructed in accordance with, e.g., light panel **702** or **802** described elsewhere herein. The LED-based light panel **1800** in this example includes a power regulator **1810** which preferably provides a relatively constant or stabilized current output to one or more arrays or series of LEDs **1840** (or other semiconductor light elements). Details of possible embodiments of a power regulator **1810** are described in U.S. patent 7,569,996, entitled "Omni-Voltage Direct Current Power Supply," hereby incorporated by reference as if set forth fully at this point. The power regulator **1810** preferably includes a switched power supply **1820** under control of a control circuit **1825**, such as a PIC microcontroller **1825**. The switched power supply **1820** may be a buck/boost power supply, or else simply a buck or boost power supply, or other type of power supply. A buck/boost power supply allows the most flexibility, in that the input voltage could vary over a relatively wide range; a particular example is described in application Ser. No. 10/708,717 referred to above. A voltage sense circuit **1831** and current sense circuit **1832** provide feedback

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 172 of 1082

information to the PIC microcontroller **1825**, which information is used in maintaining the output current to the LEDs **1840** at a stable level, and thereby reducing undesirable artifacts such as flicker.

[0114] In Figure 18, a dimmer switch **1826** adjusts a potentiometer or variable resistor **1835**, which in turn provides a dimming control input signal **1837** to the power regulator **1810**. In a preferred embodiment, the dimmer control input signal **1837** adjusts the level of gain in a feedback loop for the PIC microcontroller **1825**, thus allowing adjustment of the amount of output current for the LEDs **1840**. The circuitry of Figure 18 can allow, for example, the adjustment of light intensity without a substantial change in the output color temperature of the light source (i.e., the LEDs), and again, without flicker even at relatively low light output levels. These can be significant advantages to those working in the field.

[0115] The battery unit **830** described previously herein may take on various different forms and configurations. In alternative embodiments, for example, the battery unit **830** may, for example, comprise one or more "standard" or conventional camera batteries, as may be obtained by companies such as, e.g., Sony, Panasonic, Canon, and the like. A preferred battery compartment will include an adapter panel for receiving at least one attachable battery, such as a DV ("digital video") battery. A DV type battery typically has a battery casing designed to be snapped directly into the camera, although DV batteries may differ from camera manufacturer to manufacturer. The adapter panel is preferably constructed to mate to a particular type or brand of battery, and thus different adapter panels may be made available, each suited to a particular battery or family of batteries. At least some DV batteries output less than 12 volts--for example, a typical output voltage is 7.2 volts. The battery unit may comprise two receptor plates each adapted to securably attach a battery to the adapter panel. Electrical contacts provide electrical connection from the battery to downstream electronics or a power output source. The battery or batteries may be electrically connected in series via electronics integrated in the adapter panel, thus doubling the voltage to, e.g., 14.4 volts. Alternatively, the adapter panel could include a transformer of other type of DC-DC conversion circuitry to step up the voltage to 12 volts or some other appropriate level.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 173 of 1082

[0116] The battery unit will preferably include struts or other attachment means in order to allow the battery unit to readily attach to, e.g., an LED based light panel **802**, in a manner similar to the way in which battery unit **830** may connect to the panel **802**.

[0117] Finally, Figures 19A and B illustrate some logic suitable for use with the preferred embodiment of the instant invention. More particularly, such operations as are illustrated in Figure 19 might be implemented within microcontroller **626**, controller **1825**, etc. Procedure **1900** is designed to prepare the instant light to fire in burst mode upon receipt of a signal from an associated camera or other electronic device. As a first preferred step **1905**, the instant routine will preferably initialize its variables according to methods well known to those of ordinary skill in the art. As a next preferred step, a comparator reference value will be selected (step **1910**). In some preferred embodiments, a comparison will be made between the voltage in the capacitor that will be used to power the flash and a reference voltage that might be, for example, found within the microprocessor. In some preferred embodiments, a voltage divider will used to make the voltages between the capacitor (which might be, for example, 50 volts or so) and microprocessor (e.g., five volts) comparable. That being said, those of ordinary skill in the art will recognize that this is only one method of implementing this step and other methods such as A / D conversion, analog circuitry, etc. could be used instead of a voltage divider. Additionally, those of ordinary skill in the art will realize that discrete circuitry equivalents of the operations in 19A and 19B could readily be constructed by those of ordinary skill in the art.

[0118] Next, and preferably, a loop will be entered, a purpose of which is to build up a reservoir of power for use by the LED array when a flash or burst is requested. As is indicated in Figure 19B, preferably the boost transistor will be activated (step **1915**) and then deactivated (step **1920**), thereby incrementally charging the flash capacitor. Next, and preferably, a comparison will be made between the reference voltage and the voltage in the flash capacitor (step **1925**) and if the comparator is "low," the preferred logic would branch back to step **1915**, where additional power will be added to the flash capacitor. However, if the comparator is "high", (i.e., the "yes" branch of decision item **1925)**, the instant invention will then preferably proceed to turn on the IRQ (i.e., interrupt request line), step **1932**.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 174 of 1082

[0119] Next, the instant invention will next preferably loop continuously checking for a low state of the comparator (decision item **1935**), thereby allowing for the possibility of leakage in the capacitor and correcting same if it occurs. If the comparator "low" value is "no," the instant invention will stay in its current loop. However, if the decision item **1935** returns a value of "yes," the instant invention will preferably branch up to step **1950** where additional power will be added.

[0120] Then, when a sync signal is sensed (or if a photographer manually activates the flash mode), in a preferred arrangement an interrupt will be generated that transfers control to routine **1950**.

[0121] As a first preferred step in that routine, the output to the LED will be activated, thereby transferring power from the capacitor to the LEDs and activating them (step **1950**). Next, and preferably, a timer will be set for a predetermined period of time (step **1955**). Although many different time periods might be used (including variable time intervals that would be responsive to through-the-lens metering requirements), in a preferred embodiment the timer will be set to 0.01 seconds. This is the length of time the LED array will be activated and, hence, the duration of the flash.

[0122] Step **1960** is a decision item that is designed to implement the timer value set in the previous step. Until the timer value is reached, the LEDs will remain activated and decision item will keep looping. Once the appropriate period of time has passed (i.e., the "yes" branch of decision item **1960**), the output to the LED will be terminated (step **1965**), thereby ending the flash. Next, and preferably, the IRQ will be turned off (step **1970**) in preparation for a return to the procedure **1900** or some other procedure in the software of the instant invention (step **1975**).

[0123] Upon return to procedure **1900**, the voltage across the capacitor will dip well below the threshold due to the energy delivered to flash the LEDs. Thus at decision **1935**, control will return to step **1915** to toggle the boost transistor and recharge the capacitor. When accomplished, the IRQ will be re-enabled to allow another flash to occur.

[0124] Certain embodiments have been described with respect to the placement of lamp elements (e.g., LEDs) on a "mounting surface" or similar surface or area. It will be appreciated that the term "mounting surface" and other such terms encompass not only

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 175 of 1082

flat surfaces but also contoured, tiered, or multi-level surfaces. Further, the term covers surfaces that allow the lamp elements to project light at different angles.

[0125] Certain embodiments have been described with respect to the placement of lamp elements (e.g., LEDs) on a "mounting surface" or similar surface or area. It will be appreciated that the term "mounting surface" and other such terms encompass not only flat surfaces but also contoured, tiered, or multi-level surfaces. Further, the term covers surfaces which allow the lamp elements to project light at different angles.

[0126] Various embodiments have been described as having particular utility to film and other image capture applications. However, the various embodiments may find utility in other areas as well, such as, for example, automated manufacturing, machine vision, and the like.

[0127] Those of ordinary skill in the art will understand that the term "microprocessor" as used herein should be broadly construed to include any device that is capable of being programmed including, without limitation, controllers, microcontrollers, gate arrays, programmable logic devices ("PLD"), etc. Thus, for purposes of the instant disclosure the terms "processor," "microprocessor" and "CPU" (i.e., central processing unit) should be interpreted herein to take the broadest possible meaning, and such meaning is intended to include any PLD or other programmable or active device of the general sort described above.

[0128] While preferred embodiments of the invention have been described herein, many variations are possible which remain within the concept and scope of the invention. Such variations would become clear to one of ordinary skill in the art after inspection of the specification and the drawings. The invention therefore is not to be restricted except within the spirit and scope of any appended claims.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 176 of 1082

CLAIMS

What is claimed is:

1. A camera illumination system for image capture, comprising:

(a) a camera having at least a video mode and a still picture mode;

(b) at least one LED in electronic communication with said camera, said at least one LED illuminating at least a portion of a field of view of said camera when said LED is activated; and

(c) control circuitry in electronic communication with said LED and with said camera, said control circuitry at least for activating said at least one LED to a strobe mode when said camera is in said still picture mode and a continuous illumination mode when said camera is in said video mode.

2. The camera illumination system for image capture according to Claim **1**, wherein said at least one LED comprises a plurality of LEDs arranged in an array.

3. The camera illumination system for image capture according to Claim **1**, wherein said control circuitry comprises:

(1) a sync connector in electronic communication with said camera,

(2) a microprocessor in electronic communication with said sync connector and with said at least one LED, said microprocessor being programmed to at least activate said LED to a strobe mode or to a continuous illumination mode in response to a signal from said sync connector.

4. The camera illumination system for image capture according to Claim **1**, wherein said at least one LED is removably attached to said camera.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 177 of 1082

5. The camera illumination system for image capture according to Claim **1**, wherein said camera is selected from a group consisting of a digital still camera, a film camera, a video camera, a motion picture camera, a photography camera, and a digital video camera.

6. An area illumination system, comprising:

(a) at least one LED; and,

(b) circuitry in electronic communication with said LED, said circuitry at least for activating said LED in either a strobe mode or a continuous mode.

7. The area illumination system according to Claim **6**, wherein said at least one LED comprises a plurality of LEDs arranged in an array.

8. The area illumination system according to Claim **6**, wherein said at least one LED comprises a linear LED array.

9. The area illumination system according to Claim **6**, wherein said control circuitry comprises:

(1) a sync connector in electronic communication with said camera,

(2) a microprocessor in electronic communication with said sync connector and with said at least one LED, said microprocessor being programmed to at least activate said LED to either a strobe mode or to a continuous illumination mode in response to a signal from said sync connector.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 178 of 1082

10. The area illumination system according to Claim **6**, wherein said at least one LED is removably attached to a camera.

11. The camera illumination system for image capture according to Claim **10**, wherein said camera is selected from a group consisting of a digital still camera, a film camera, a video camera, a motion picture camera, a photography camera, and a digital video camera.

12. An area illumination system for lighting a subject for film, photography or video, the illumination system comprising:

(a) a portable frame, said portable frame adapted for temporary mounting to a movable camera apparatus such that said portable frame follows the movements of the camera apparatus, said portable frame being readily detachable from the camera apparatus;

(b) a plurality of LEDs arranged in a plurality of linear rows across a front face of said frame for lighting the subject for film, photography, or video; and,

(c) an effects generator which is configurable to activate said LEDs in at least two different modes, wherein said at least two different modes comprise a first mode that generates a flash of light from said plurality of LEDs and a second mode that generates a continuous light from said plurality of LEDs.

13. The camera illumination system for image capture according to Claim **12**, wherein said camera is selected from a group consisting of a digital still camera, a film camera, a video camera, a motion picture camera, a photography camera, and a digital video camera.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 179 of 1082

14. The camera illumination system for image capture according to Claim **12**, wherein said effects generator comprises:

(1) a sync connector in electronic communication with said camera,

(2) a microprocessor in electronic communication with said sync connector and with said at least one LED, said microprocessor being programmed to at least activate said LED to a strobe mode or to a continuous illumination mode in response to a signal from said sync connector.

15. An area illumination system for lighting a subject for film, photography or video, the illumination system comprising:

(a) a portable frame, said portable frame adapted for temporary mounting to a movable camera apparatus such that the portable frame follows the movements of the camera apparatus, said portable frame being readily detachable from the camera apparatus;

(b) a plurality of LEDs secured to said frame for lighting the subject for film, photography, or video;

(c) a dimmer integrated with said portable frame, said dimmer configured to provide manual adjustment of an illumination intensity of said light emitting diodes; and

(d) an effects generator which is configurable to activate said LEDs in at least two different modes, wherein said at least two different modes comprise a first mode that that generates a flash of light from said plurality of LEDs and a second mode that generates a continuous light from said plurality of LEDs.

16. An area illumination system for lighting a subject for film, photography or video, the illumination system comprising:

(a) a frame, said frame adapted for being mounted to and readily disengaged from a stand, a plurality of light emitting diodes (LEDs) arranged across

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 180 of 1082

a front face of said frame for lighting the subject for film, photography, or video; and

(b) an effects generator which is configurable to activate said LEDs in at least two different modes, wherein said at least two different modes comprise a first mode that that generates a flash of light from said plurality of LEDs and a second mode that generates a continuous light from said plurality of LEDs.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 181 of 1082

Fig. 1

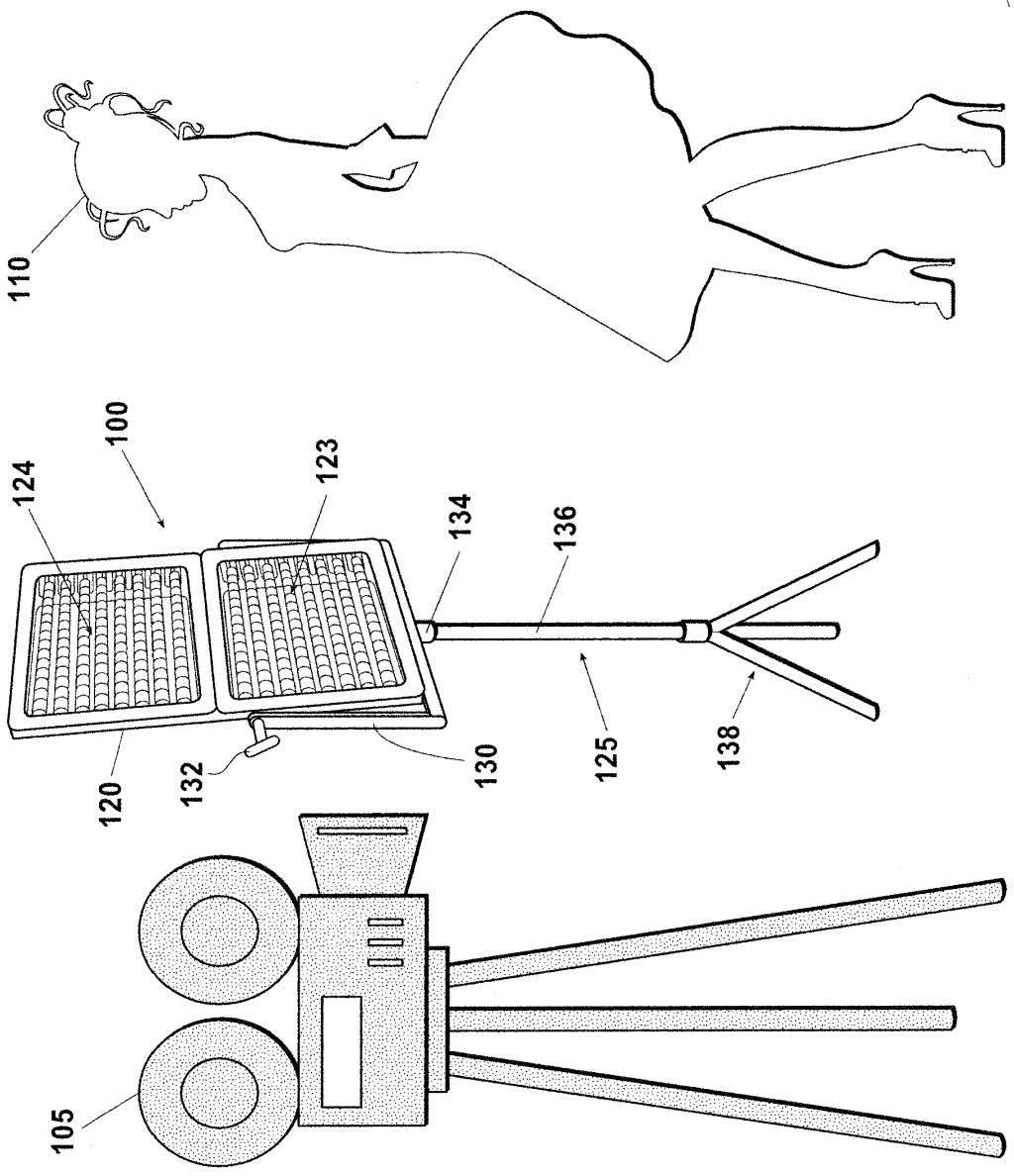


Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 182 of 1082

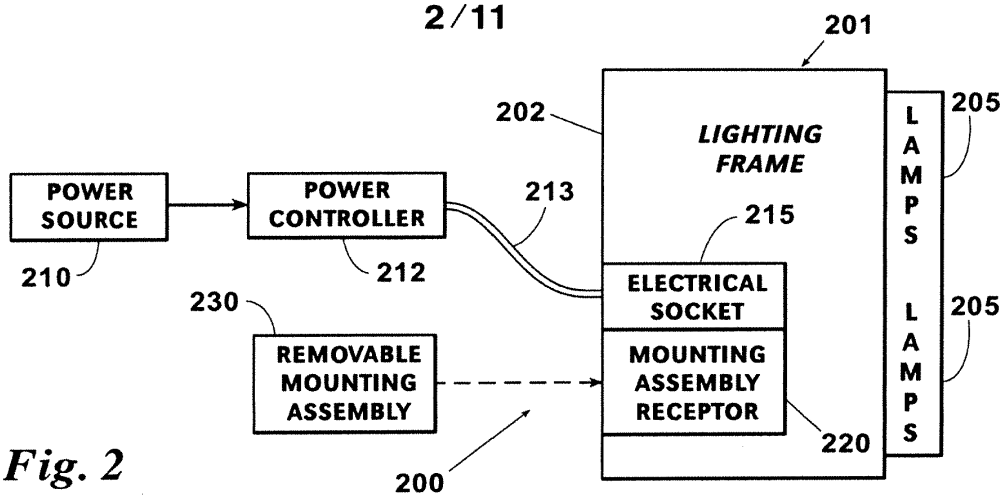

201
202
LIGHTING FRAME
205
LAMPS
205
LAMPS
POWER SOURCE
210
POWER CONTROLLER
212
213
215
ELECTRICAL SOCKET
230
REMOVABLE MOUNTING ASSEMBLY
MOUNTING ASSEMBLY RECEPTOR
220
200

Fig. 2

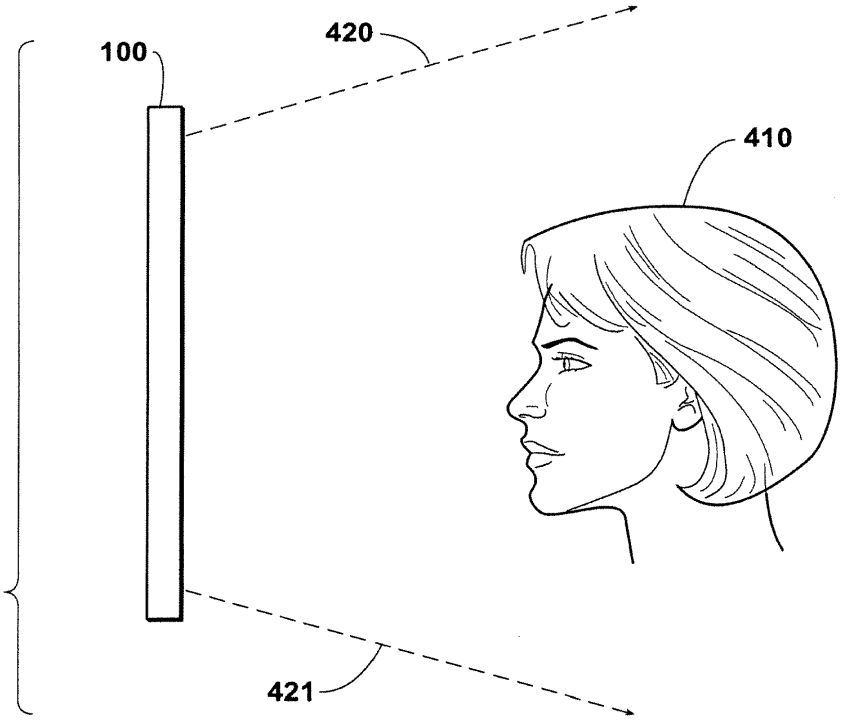

100
420
410
421

Fig. 4

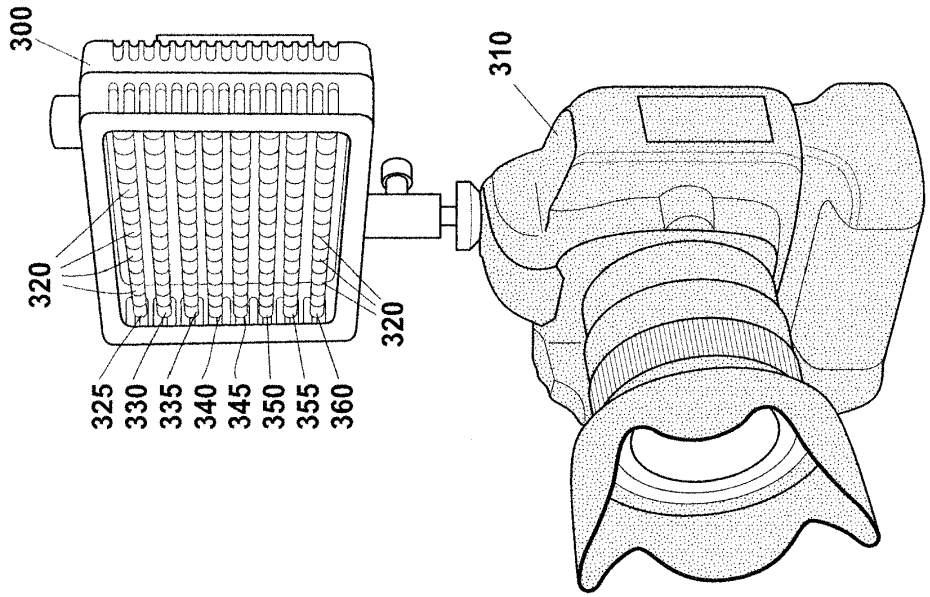


Fig. 3B

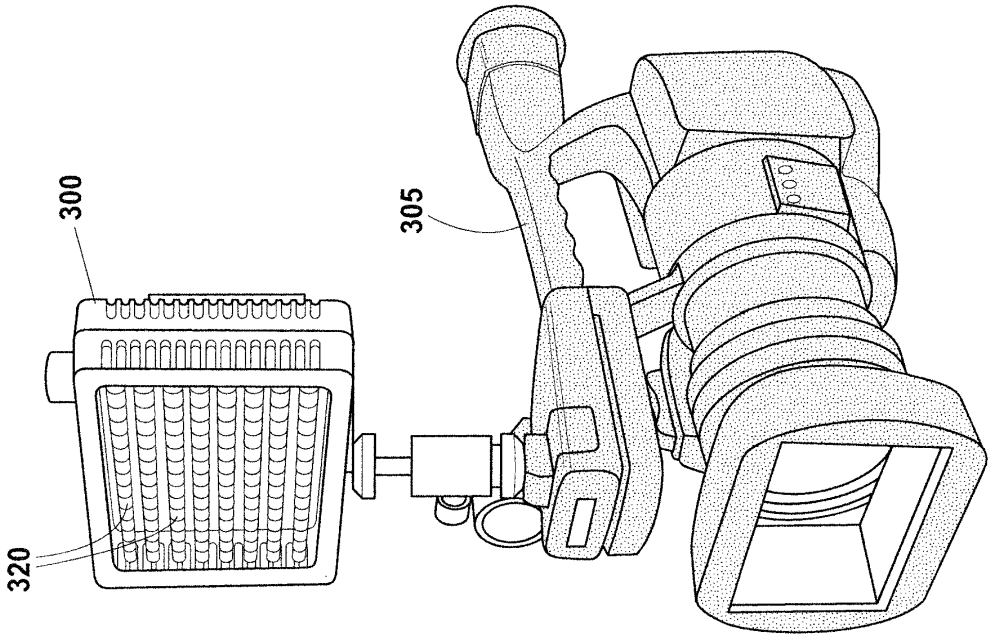


Fig. 3A

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 184 of 1082

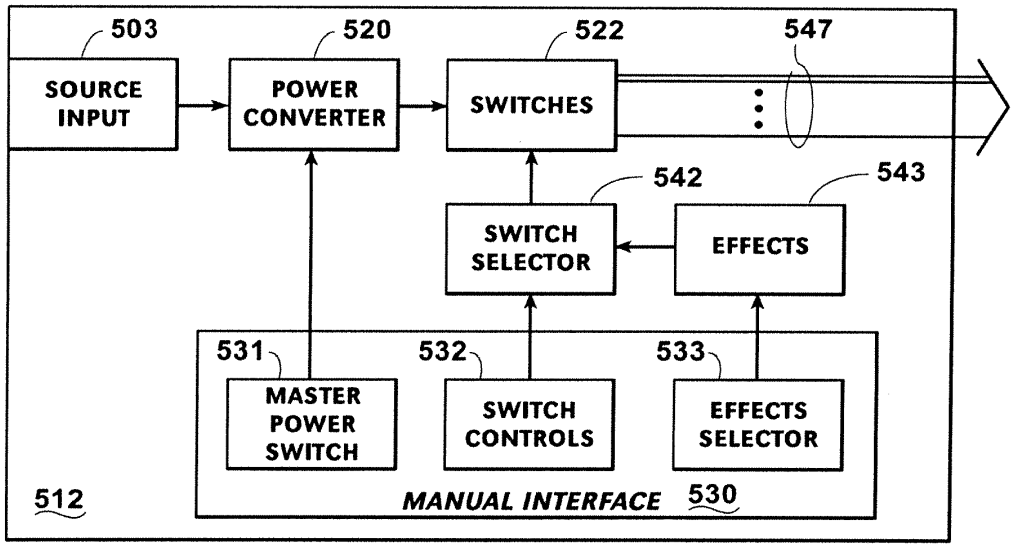

503
SOURCE INPUT
520
POWER CONVERTER
522
SWITCHES
547
542
SWITCH SELECTOR
543
EFFECTS
531
MASTER POWER SWITCH
532
SWITCH CONTROLS
533
EFFECTS SELECTOR
MANUAL INTERFACE
530
512

Fig. 5A

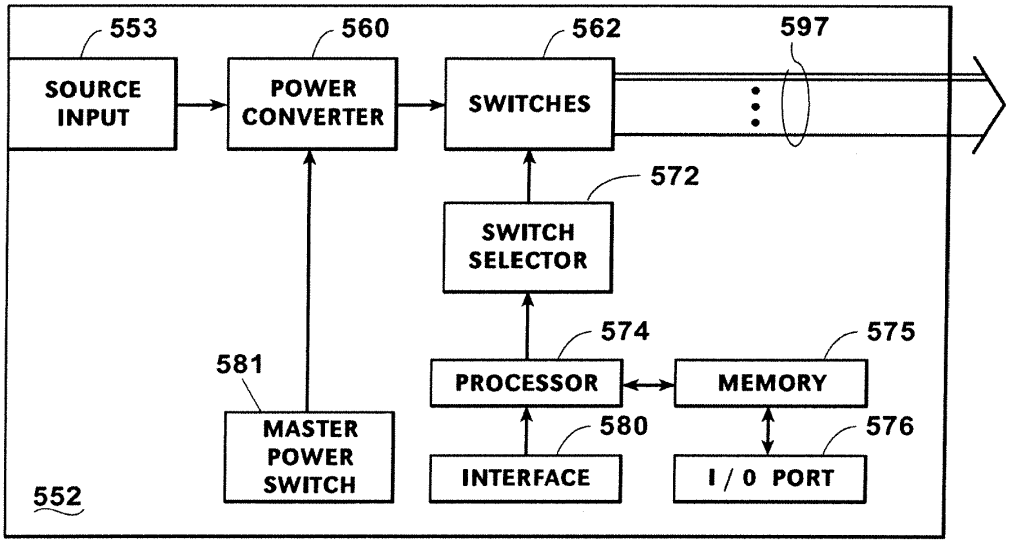

553
SOURCE INPUT
560
POWER CONVERTER
562
SWITCHES
597
572
SWITCH SELECTOR
574
PROCESSOR
575
MEMORY
581
MASTER POWER SWITCH
580
INTERFACE
576
I / 0 PORT
552

Fig. 5B

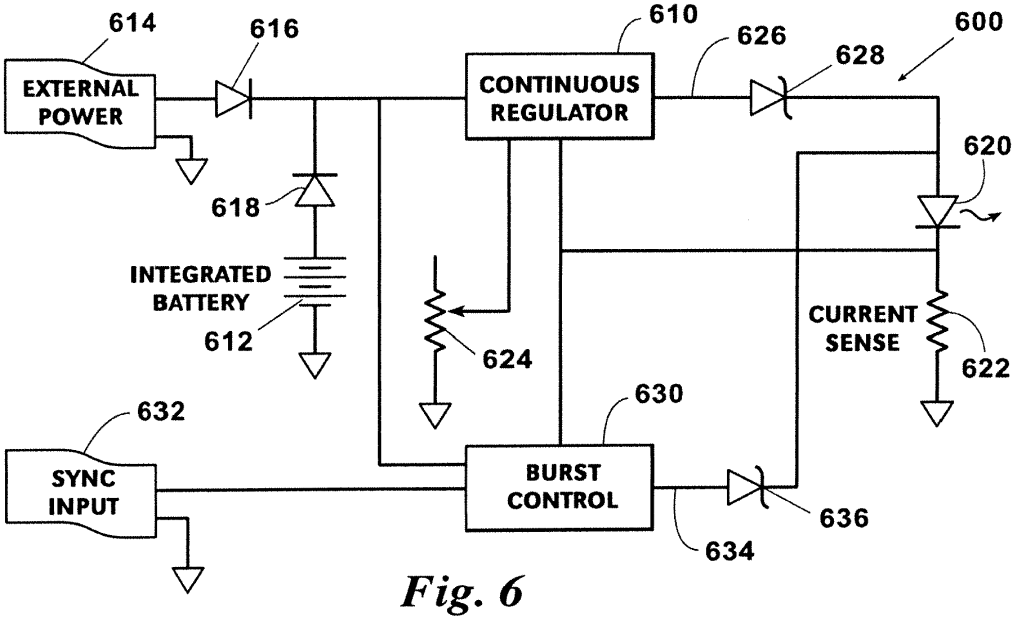

614
616
610
626
628
600
EXTERNAL POWER
CONTINUOUS REGULATOR
620
618
INTEGRATED BATTERY
612
624
CURRENT SENSE
622
632
630
SYNC INPUT
BURST CONTROL
636
634

Fig. 6

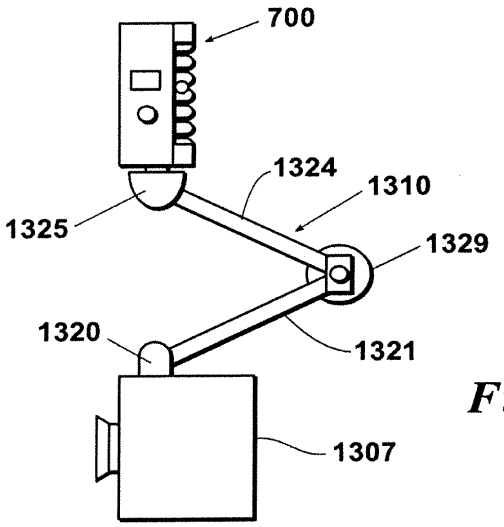

700
1324
1310
1325
1329
1320
1321
1307

Fig. 13

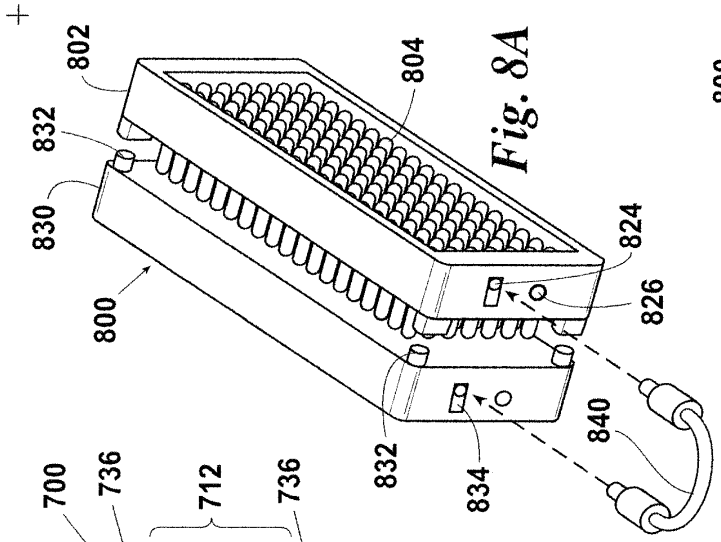


Fig. 8A

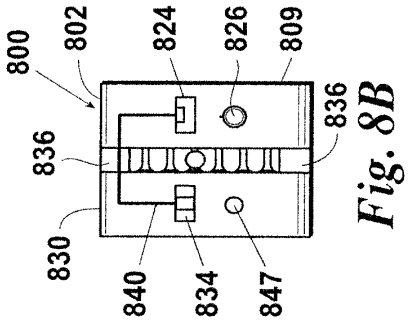


Fig. 8B

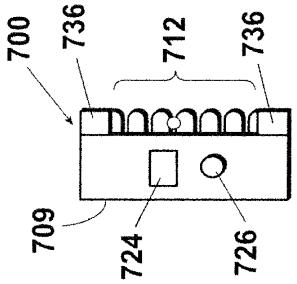


Fig. 7B

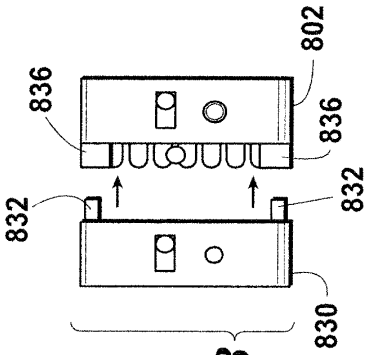


Fig. 9B

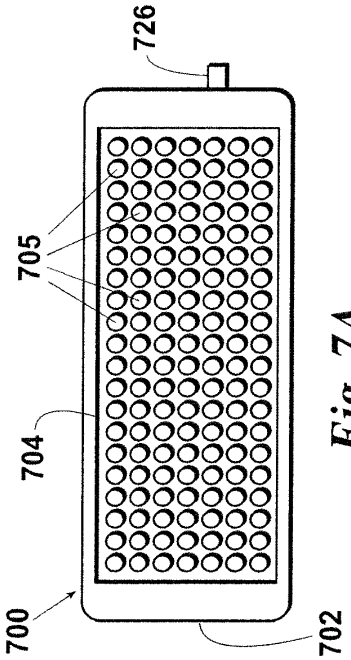


Fig. 7A

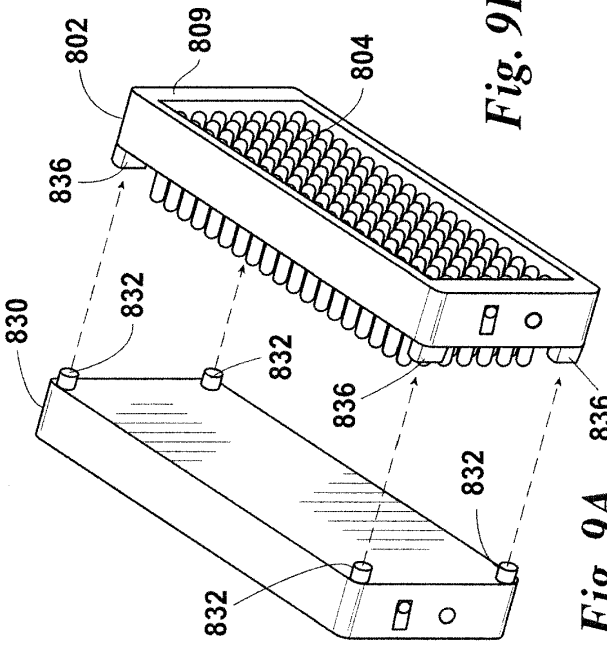


Fig. 9A

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 187 of 1082

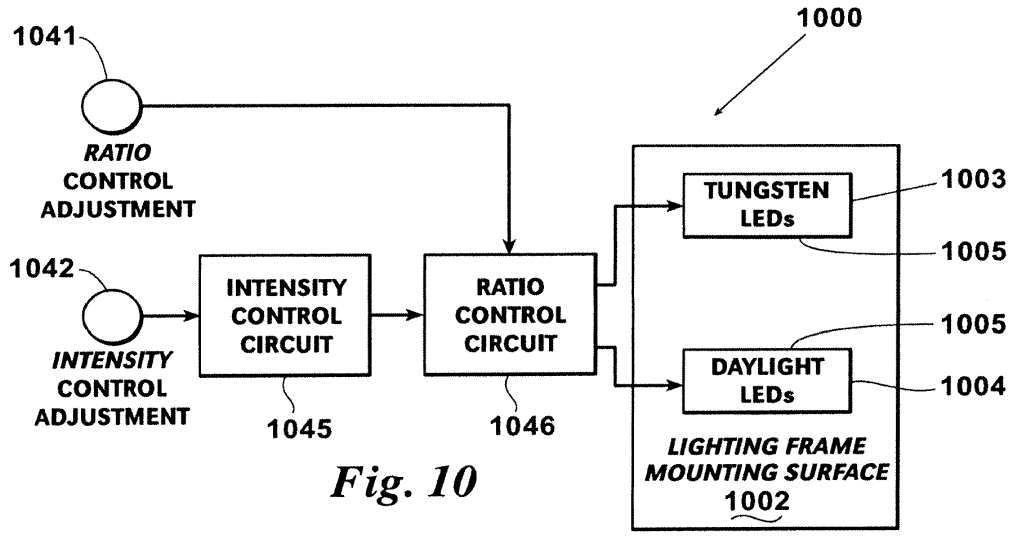

1041
RATIO CONTROL ADJUSTMENT
1042
INTENSITY CONTROL ADJUSTMENT
INTENSITY CONTROL CIRCUIT
1045
RATIO CONTROL CIRCUIT
1046
1000
TUNGSTEN LEDs
1003
1005
DAYLIGHT LEDs
1005
1004
LIGHTING FRAME MOUNTING SURFACE
1002

Fig. 10

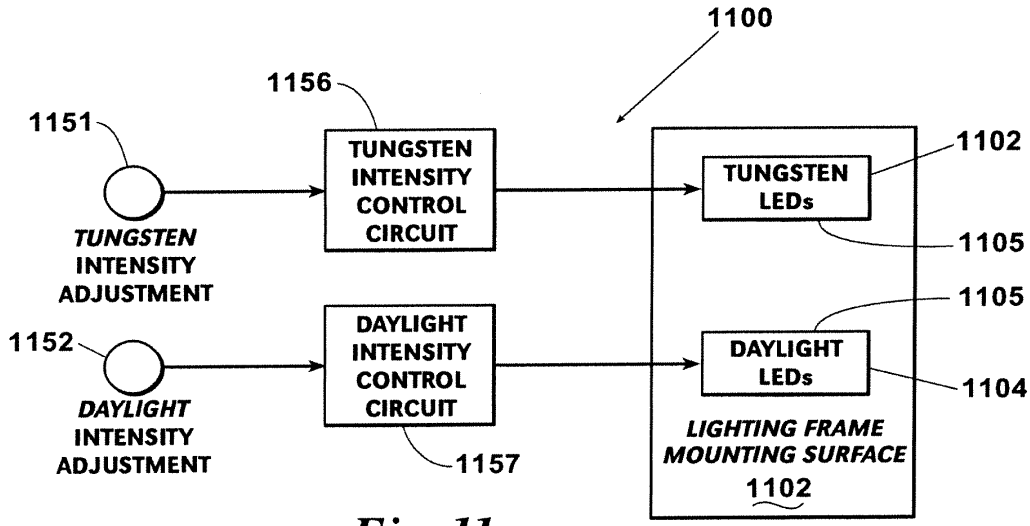

1100
1156
1151
TUNGSTEN INTENSITY ADJUSTMENT
TUNGSTEN INTENSITY CONTROL CIRCUIT
1152
DAYLIGHT INTENSITY ADJUSTMENT
DAYLIGHT INTENSITY CONTROL CIRCUIT
1157
TUNGSTEN LEDs
1102
1105
DAYLIGHT LEDs
1105
1104
LIGHTING FRAME MOUNTING SURFACE
1102

Fig. 11

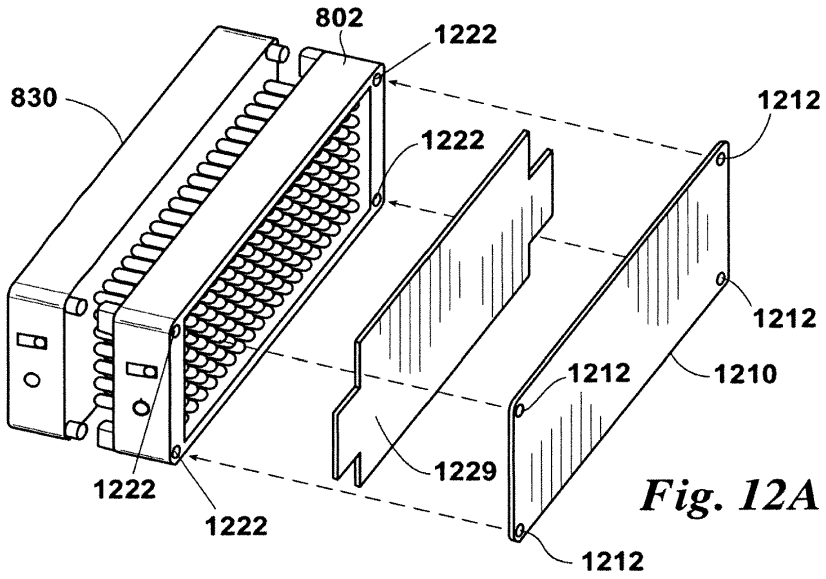


Fig. 12A

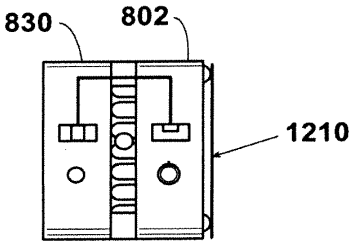


Fig. 12B

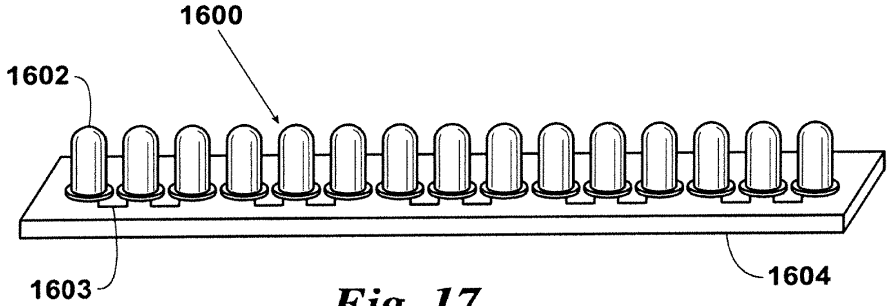


Fig. 17

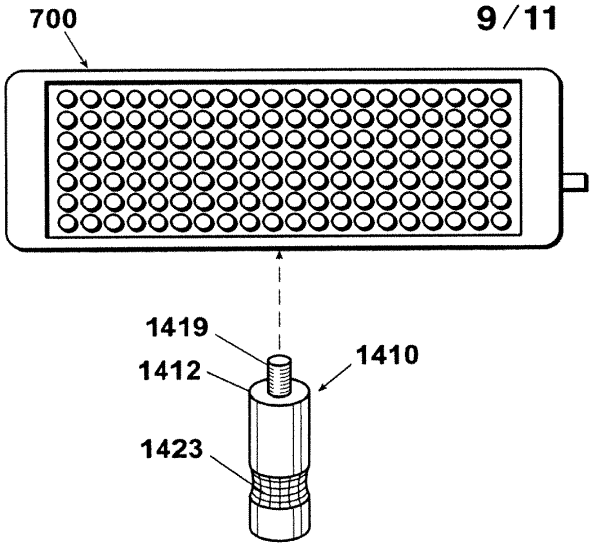


Fig. 14

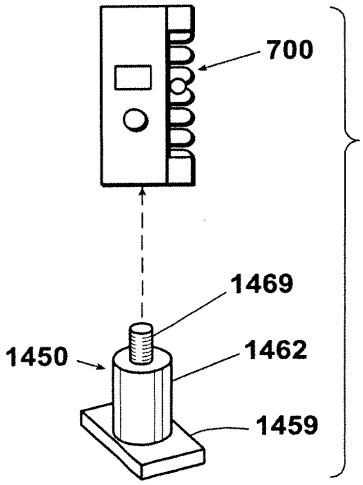


Fig. 15

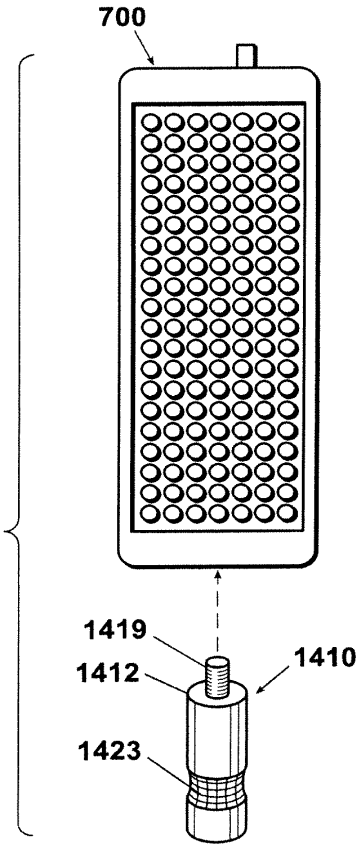


Fig. 16

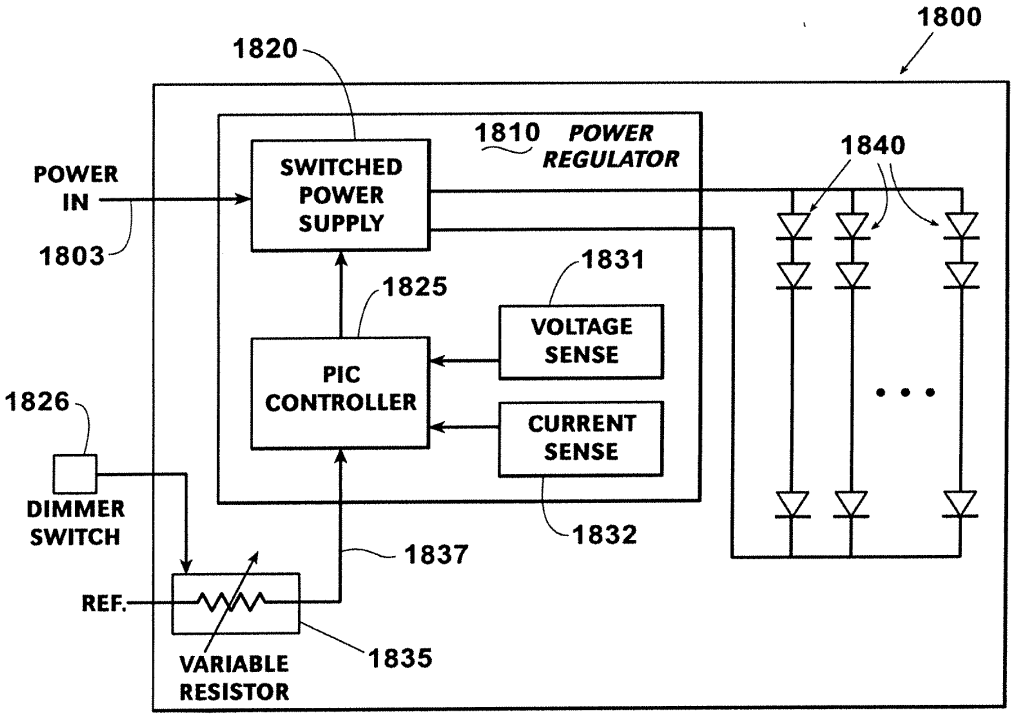

1800
1820
1810 POWER REGULATOR
1840
POWER IN
1803
SWITCHED POWER SUPPLY
1831
1825
VOLTAGE SENSE
PIC CONTROLLER
CURRENT SENSE
1826
DIMMER SWITCH
1832
1837
REF.
1835
VARIABLE RESISTOR

Fig. 18

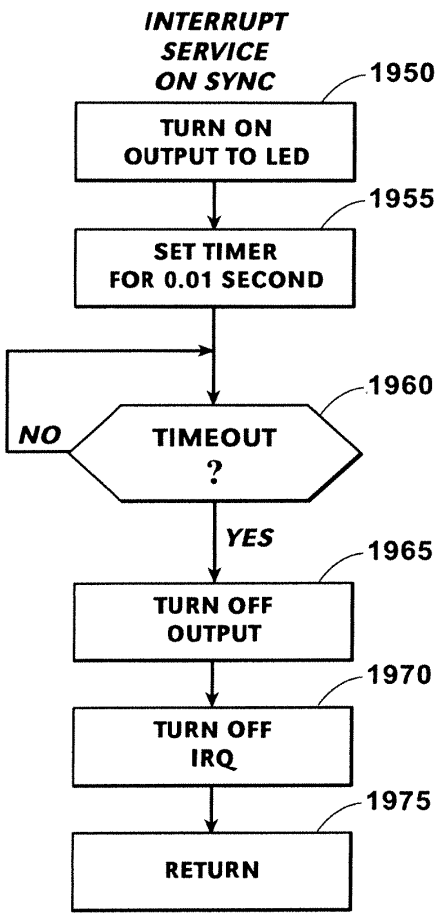


Fig. 19A

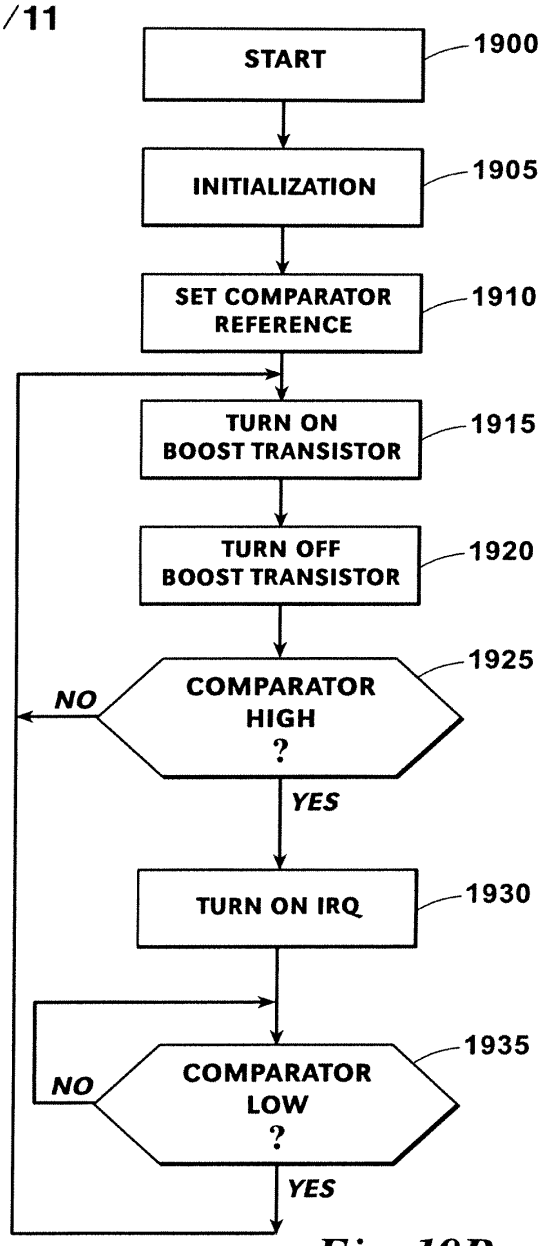


Fig. 19B

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/025560

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N5/225
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/157207 A1 (VOSS JAMES S [US] ET AL) 21 July 2005 (2005-07-21) abstract figures 1-4 paragraph [0010] - paragraph [0014] -----	1-16
Y	US 2005/231948 A1 (POHLERT RUDY G [US] ET AL) 20 October 2005 (2005-10-20) cited in the application abstract figures 1-66 paragraph [0023] - paragraph [0024] paragraph [0092] paragraph [0141] paragraph [0186] ----- -/--	1-16

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 May 2011	27/05/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Tessens, Linda

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/025560

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007/291334 A1 (NAKANISHI TAKAO [JP]) 20 December 2007 (2007-12-20) abstract paragraph [0033] -----	1-16

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/025560

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005157207 A1	21-07-2005	JP 2005210722 A	04-08-2005
US 2005231948 A1	20-10-2005	US 2006181862 A1	17-08-2006
		US 2006126319 A1	15-06-2006
		US 2009268425 A1	29-10-2009
		US 2009268426 A1	29-10-2009
US 2007291334 A1	20-12-2007	JP 4432054 B2	17-03-2010
		JP 2008005035 A	10-01-2008

Form PCT/ISA/210 (patent family annex) (April 2005)

Electronic Acknowledgement Receipt

EFS ID:	38774510
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan/Darrell Hollis
Filer Authorized By:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Receipt Date:	05-MAR-2020
Filing Date:	07-APR-2017
Time Stamp:	07:16:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	_form1449.pdf	45485 dd2faaea347b1e61cdff999c810b577e820de020	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	_USPTOltr.pdf	23803 3da3a074e23722b0506028e187d55bad6cb3f002	no	3
Warnings:					
Information:					
3	Foreign Reference	3-335205.pdf	5190061 710ea3ff692d22864e06717278fdd0d80aad6e74	no	56
Warnings:					
Information:					
4	Non Patent Literature	4-335215.pdf	390753 a3a518392b103f30b585db503108c582859c634a	no	4
Warnings:					
Information:					
5	Non Patent Literature	5-335212.pdf	174349 6678a8aa6c267cc60cc9defdb43ec8159fc3c336	no	2
Warnings:					
Information:					
6	Non Patent Literature	6-335213.pdf	402026 2e7e61b6aa01f85dcb9e020bf50e4df69acfc314	no	4
Warnings:					
Information:					
7	Non Patent Literature	7-335219.pdf	2016098 846f8a9b26a6a74c7ea3b2670c39d50184766060	no	21
Warnings:					
Information:					
8	Non Patent Literature	8-335208.pdf	6174158 3d42a4e5aaf0036c1f21db40cf7e6916f475ea36	no	45
Warnings:					
Information:					

9	Non Patent Literature	9-335210.pdf	4478295 8865cde8c4ef0dbf88697311c7423a137f91cf02	no	64
Warnings:					
Information:					
10	Non Patent Literature	10-335204.pdf	2594293 342324fafba5310a1346289f8ca36f1f05746a75	no	46
Warnings:					
Information:					
		Total Files Size (in bytes):	21489321		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (11-17)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	15/481,460
Filing Date	April 7, 2017
First Named Inventor	Roderick Allen GAMMONS
Art Unit	2844
Examiner Name	Thai N. PHAM
Attorney Docket Number	69726

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months. Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 501407.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☐ Payment by EFS-Web

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Martin D. Moynihan/	Date	March 5, 2020
Name (Print/Type)	Martin D. Moynihan	Registration No.	40338

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal	
Application Number:	15481460
Filing Date:	07-Apr-2017
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Filer:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Filed as Small Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt	
EFS ID:	38774447
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	05-MAR-2020
Filing Date:	07-APR-2017
Time Stamp:	06:30:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$950
RAM confirmation Number	E202035731095572
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Post Allowance Communication - Incoming	69726ResponsetoNoticeofAllowanceof29Jan2020.pdf	18569 5fe94c74c62e34c705fa4db89ba500f2d5ff3615	no	1
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	69726RCEtoWithdrawAllowancefiledon5Mar2020.pdf	154197 4a82ac250f128f79a77fba2f53e762f1b21c2040	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30302 1e09862cd8c056f2f810f9bcf2ae35b8fe542f9e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	203068		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM	§		

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF ALLOWANCE

Sir:

This is a response to the Notice of Allowance dated January 29, 2020 for which payment is due on or before April 29, 2020.

Applicant hereby submits a Request for Continued Examination (RCE). Applicant will soon submit a Supplemental Information Disclosure Statement (IDS) and copies of the references cited therein.

The allowance of claims 75-88 and 90-94 and a new Notice of Allowance after consideration of the references cited in the Supplemental Information Disclosure Statement is respectfully requested.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: March 5, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 01/29/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 01/29/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	04/29/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 205 of 1082

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 01/29/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHAM, THAI N	2844	315-297000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 206 of 1082

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 01/29/2020

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, THAI N	
ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 01/29/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/481,460	Applicant(s) GAMMONS et al.	
	Examiner THAI N PHAM	Art Unit 2844	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE submitted on 01/14/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 75-88 and 90-94 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some *c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 01/14/2020.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Thai Pham/
Primary Examiner, Art Unit 2844

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 209 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020				
	1	-	-	-	-	-				
	2	-	-	-	-	-				
	3	-	-	-	-	-				
	4	-	-	-	-	-				
	5	-	-	-	-	-				
	6	-	-	-	-	-				
	7	-	-	-	-	-				
	8	-	-	-	-	-				
	9	-	-	-	-	-				
	10	-	-	-	-	-				
	11	-	-	-	-	-				
	12	-	-	-	-	-				
	13	-	-	-	-	-				
	14	-	-	-	-	-				
	15	-	-	-	-	-				
	16	-	-	-	-	-				
	17	-	-	-	-	-				
	18	-	-	-	-	-				
	19	-	-	-	-	-				
	20	-	-	-	-	-				
	21	-	-	-	-	-				
	22	-	-	-	-	-				
	23	-	-	-	-	-				
	24	-	-	-	-	-				
	25	-	-	-	-	-				
	26	-	-	-	-	-				
	27	-	-	-	-	-				
	28	-	-	-	-	-				
	29	-	-	-	-	-				
	30	-	-	-	-	-				
	31	-	-	-	-	-				
	32	-	-	-	-	-				
	33	-	-	-	-	-				
	34	-	-	-	-	-				
	35	-	-	-	-	-				
	36	-	-	-	-	-				
	37	-	-	-	-	-				
	38	-	-	-	-	-				
	39	-	-	-	-	-				
	40	-	-	-	-	-				
	41	-	-	-	-	-				
	42	-	-	-	-	-				

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 210 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019	01/21/2020				
	43	-	-	-	-	-				
	44	-	-	-	-	-				
	45	-	-	-	-	-				
	46	-	-	-	-	-				
	47	-	-	-	-	-				
	48	-	-	-	-	-				
	49	-	-	-	-	-				
	50	-	-	-	-	-				
	51	-	-	-	-	-				
	52	-	-	-	-	-				
	53	-	-	-	-	-				
	54	-	-	-	-	-				
	55	✓	-	-	-	-				
	56	✓	-	-	-	-				
	57	✓	-	-	-	-				
	58	✓	-	-	-	-				
	59	✓	-	-	-	-				
	60	✓	-	-	-	-				
	61	✓	-	-	-	-				
	62	✓	-	-	-	-				
	63	✓	-	-	-	-				
	64	✓	-	-	-	-				
	65	✓	-	-	-	-				
	66	✓	-	-	-	-				
	67	✓	-	-	-	-				
	68	✓	-	-	-	-				
	69	✓	-	-	-	-				
	70	✓	-	-	-	-				
	71	✓	-	-	-	-				
	72	✓	-	-	-	-				
	73	✓	-	-	-	-				
	74	✓	-	-	-	-				
	75		✓	=	=	=				
	76		✓	=	=	=				
	77		✓	=	=	=				
	78		✓	=	=	=				
	79		✓	=	=	=				
	80		✓	=	=	=				
	81		✓	=	=	=				
	82		✓	=	=	=				
	83		✓	=	=	=				
	84		✓	=	=	=				
	85		✓	=	=	=				
	86		✓	=	=	=				
	87		✓	=	=	=				
	88		✓	=	=	=				
	89		✓	-	-	-				
	90		✓	=	=	=				
	91		✓	=	=	=				
	92		✓	O	=	=				
	93		✓	=	=	=				
	94		✓	O	=	=				

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 211 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP
Updated East search	07/08/2019	TP
Updated East search	10/12/2019	TP
Did the interference search	10/12/2019	TP
Looked at IDS	01/21/2020	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 212 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H05B	37/02, 37/0272, 37/029, 37/0281, 33/08, 33/0842	10/12/2019	TP
F21V	23/00, 23/003	10/12/2019	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 213 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

CPC						
Symbol					**Type**	**Version**
F21V	/	23	/	003	F	2013-01-01
H05B	/	47	/	18	I	2020-01-01
H05B	/	47	/	19	I	2020-01-01
H05B	/	47	/	155	I	2020-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	21 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200121

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 214 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F21V	/	23	/	00
H05B	/	37	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	21 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200121

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 215 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	13	-	25	-	37	-	49	-	61	-	73	11	85
-	2	-	14	-	26	-	38	-	50	-	62	-	74	12	86
-	3	-	15	-	27	-	39	-	51	-	63	1	75	13	87
-	4	-	16	-	28	-	40	-	52	-	64	2	76	14	88
-	5	-	17	-	29	-	41	-	53	-	65	3	77	-	89
-	6	-	18	-	30	-	42	-	54	-	66	4	78	15	90
-	7	-	19	-	31	-	43	-	55	-	67	5	79	16	91
-	8	-	20	-	32	-	44	-	56	-	68	6	80	17	92
-	9	-	21	-	33	-	45	-	57	-	69	7	81	18	93
-	10	-	22	-	34	-	46	-	58	-	70	8	82	19	94
-	11	-	23	-	35	-	47	-	59	-	71	9	83		
-	12	-	24	-	36	-	48	-	60	-	72	10	84		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	21 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20200121

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 216 of 1082

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	1	of	2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3] Number [4] Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature	/Thai Pham/	Date Considered	01/21/2020

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Third Party Observation Dated 20 September 2019 From the European Patent Office Re. Application No. EP 20170165609. (2 Pages)	
	2	Astera "ARC2 - Radio Frequency Remote Controller: User Manual", Astera LED Technology, Version 3.2.5, P.1-23, 06 July 2010.	
	3	Astera "ARC2-RF-Remote Controller - RC2-RF Radio Frequency Remote Controller Datasheet", Astera LED Technology, Version 1.1, P.1-27, November 2009.	
	4	Astera "AX10 Spotmax™ User Manual", Astera LED Technology, P.1-37, 07 May 2015.	
	5	Astera "CRMX Wireless DMX for LumenRadio", Astera LED Technology, Wireless Event Lighting, Datasheet, P.1-12, 2015.	
	6	Astera "DMX Ethernet Gateway (AC4)", Astera LED Technology, User Manual, Version 4.0.10, P.1-20, 18 September 2014.	
	7	Astera "Wireless DMX Receiver/Transmitter (ART3)", Astera LED-Technology, Bedienungsanleitung [User Manual], Version 3.2.20, P.1-21, 23 October 2010.	

Examiner Signature	/Thai Pham/	Date Considered	01/21/2020

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313 1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	(("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48
S11	48723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23

S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S17	48822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59
S22	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" |	US-PGPUB; USPAT;	OR	ON	2018/12/21 19:00

		"20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S23	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:41
S24	26	(US-0094798-$ | US-0112862-$ | US-0135842-$ | US-0139130-$ | US-0257007-$ | US-20040257007-$ | US-20140139130-$ | US-20180094798-$ | US-20180112862-$ | US-20180135842-$ | US-2120512-$ | US-3002995-$ | US-7777427-$ | US-8253666-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:10
S26	59607	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S27	203	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S29	1093	light$4 with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:49

S30	137	S26 and S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:50
S31	12	("20070159347" | "20080129226" | "5924784" | "7038399").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:52
S32	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:56
S33	6	("20030176205" | "20040110540" | "20070146332" | "20070173291" | "7120471" | "7266397").PN. OR ("8320887").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/10/15 10:59
S34	260	light$4 same effect same control$4 same memory same user same (calculat$4 or comput$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:00
S35	4	S26 and S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:01
S36	92	light$4 with control$4 with memory with stor$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:02
S37	3	S26 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:04
S38	74	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:06
S39	33	S26 and S38	US-PGPUB;	OR	ON	2019/10/15

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			11:07
S48	4	"20170165609"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:18
S49	22	"3229463"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/01/21 12:20

1/21/2020 12:31:01 PM
C:\Users\tpham3\Documents\EAST\Workspaces\15481460.wsp

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

	Complete if Known
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Sheet 1 of 2	Attorney Docket Number 69726

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3]- Number [4]- Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Third Party Observation Dated 20 September 2019 From the European Patent Office Re. Application No. EP 20170165609. (2 Pages)	
	2	Astera "ARC2 - Radio Frequency Remote Controller: User Manual", Astera LED Technology, Version 3.2.5, P.1-23, 06 July 2010.	
	3	Astera "ARC2-RF-Remote Controller - RC2-RF Radio Frequency Remote Controller Datasheet", Astera LED Technology, Version 1.1, P.1-27, November 2009.	
	4	Astera "AX10 Spotmax™ User Manual", Astera LED Technology, P.1-37, 07 May 2015.	
	5	Astera "CRMX Wireless DMX for LumenRadio", Astera LED Technology, Wireless Event Lighting, Datasheet, P.1-12, 2015.	
	6	Astera "DMX Ethernet Gateway (AC4)", Astera LED Technology, User Manual, Version 4.0.10, P.1-20, 18 September 2014.	
	7	Astera "Wireless DMX Receiver/Transmitter (ART3)", Astera LED-Technology, Bedienungsanleitung [User Manual], Version 3.2.20, P.1-21, 23 October 2010.	

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§		
	§		
GAMMONS Roderick Allen et al	§		
	§	Confirmation No.:	5642
Serial No.: 15/481,460	§		
	§		
Filed: April 07, 2017	§	Group Art Unit:	2844
	§		
For: LIGHTING SYSTEM AND CONTROL THEREOF [CineSFX]	§		
	§	Attorney Docket:	69726
Examiner: PHAM Thai N.	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a PTO Form 1449 which lists citations which may be material to the patentability and examination of the above identified application. Also enclosed are copies of the references cited, other than U.S. Patents and U.S. patent applications. These are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56, 37 CFR 1.97 and 37 CFR 1.98. The Examiner is requested to make these citations of official record in this application.

The undersigned states:

A. NO CERTIFICATION OR FEE DUE

☒ This Information disclosure Statement is being filed within three months of filing a national application or entry of a national phase of an international application; or before the mailing date of a first Office action on the merits of the above-identified application. Accordingly, no fee or Certification is believed due. However, if a fee is due, authorization to deduct such fee from the Deposit Account 501407 of the undersigned is hereby provided.

B. CERTIFICATION

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

C. FEE

☐

☒ No Fee is Due.

This Information Disclosure Statement under 37 CFR 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of the citations listed constitutes prior art as defined by 35 U.S.C. 102.

It is respectfully requested that the Examiner consider the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and sign the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application. Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information.

FOR PATENT TERM ADJUSTMENT CALCULATION PURPOSES ONLY:

Unless indicated otherwise, to the best of our knowledge and procedures, each item of information contained in the information disclosure statement was first known no more than thirty days prior to the filing of the information disclosure statement, either by the inventor named in the application, Attorney or agent who prepares or prosecutes the application, and every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application.

Respectfully submitted,

/ Martin D. Moynihan /

Martin D. Moynihan
Registration No. 40338
Telephone: (703)859-9634

Date: 10 January 2020

Electronic Acknowledgement Receipt	
EFS ID:	38284900
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan/Darrell Hollis
Filer Authorized By:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Receipt Date:	14-JAN-2020
Filing Date:	07-APR-2017
Time Stamp:	04:26:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	_form1449.pdf	44952 fd9834be70eee20b0db929e0d6b65de78a626e21	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	_USPTOltr.pdf	23800 af03ac5ae43167a98881b026d81a7744db85fed1	no	3
Warnings:					
Information:					
3	Non Patent Literature	1-332228.pdf	82361 84d49d795226edade23bb0107c656f5e8f711572	no	2
Warnings:					
Information:					
4	Non Patent Literature	2-332232.pdf	2063857 58d367b850a62f204f050bdcda85f85ddfe6db84	no	23
Warnings:					
Information:					
5	Non Patent Literature	3-332236.pdf	588789 d2aeec93a7234e955a5aa29f127e045550cc1e04	no	27
Warnings:					
Information:					
6	Non Patent Literature	4-332233.pdf	4569585 9e1c996715b14ce05bec811be5bdb6eb69910816	no	37
Warnings:					
Information:					
7	Non Patent Literature	5-332229S.pdf	17907891 51d549b3e280e0916cbc3e3e9f7925a3b8d4005b	no	12
Warnings:					
Information:					
8	Non Patent Literature	6-332231.pdf	705153 23c5ff895be616a9cf462a6a9bae2304fbcdba87	no	20
Warnings:					
Information:					

9	Non Patent Literature	7-332235.pdf	673937 f3613901003b60f1ac859a8b800763fdd5375aeb	no	21
Warnings:					
Information:					
		Total Files Size (in bytes):	26660325		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (11-17)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	15/481,460
Filing Date	April 7, 2017
First Named Inventor	Roderick Allen GAMMONS
Art Unit	2844
Examiner Name	Thai N. PHAM
Attorney Docket Number	69726

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months. Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 501407.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☐ Payment by EFS-Web

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Martin D. Moynihan/	Date	January 14, 2020
Name (Print/Type)	Martin D. Moynihan	Registration No.	40338

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	38284745
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	14-JAN-2020
Filing Date:	07-APR-2017
Time Stamp:	01:39:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	69726RCEtoWithdrawAllowancefiledon13Jan2020.pdf	154720 e4616b880560ec953d9faecfc9a885252db24d6c	no	1

Warnings:

This is not a USPTO supplied RCE SB30 form.	
Information:	
Total Files Size (in bytes):	154720

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (11-17)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	15/481,460
Filing Date	April 7, 2017
First Named Inventor	Roderick Allen GAMMONS
Art Unit	2844
Examiner Name	Thai N. PHAM
Attorney Docket Number	69726

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months. Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 501407.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☐ Payment by EFS-Web

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Martin D. Moynihan/	Date	January 14, 2020
Name (Print/Type)	Martin D. Moynihan	Registration No.	40338

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal					
Application Number:	15481460				
Filing Date:	07-Apr-2017				
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF				
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS				
Filer:	Martin Dennis Moynihan				
Attorney Docket Number:	69726				
Filed as Small Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt	
EFS ID:	38284727
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	14-JAN-2020
Filing Date:	07-APR-2017
Time Stamp:	01:21:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$950
RAM confirmation Number	E20201D222067205
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Post Allowance Communication - Incoming	69726ResponsetoNoticeofAllowanceof24Oct2019.pdf	18560 bb5ca342763cdc3ec56d36352aeb820992c2186b	no	1
Warnings:					
Information:					
2	Request for Corrected Filing Receipt	69726RCEtoWithdrawAllowancefiledon13Jan2020.pdf	154720 e4616b880560ec953d9faecfc9a885252db24d6c	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30302 d65cf8b5b193d445a71b13094d33ef4902c0482f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	203582		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM	§		

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF ALLOWANCE

Sir:

This is a response to the Notice of Allowance dated October 24, 2019 for which payment is due on or before January 24, 2020.

Applicant hereby submits a Request for Continued Examination (RCE). Applicant will soon submit a Supplemental Information Disclosure Statement (IDS) and copies of the references cited therein.

The allowance of claims 75-88 and 90-94 and a new Notice of Allowance after consideration of the references cited in the Supplemental Information Disclosure Statement is respectfully requested.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: January 14, 2020

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	SHAW Norman et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM	§		

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Sir:

This is in response to the attached Notice to File Corrected Application Papers dated December 18, 2019, which response is being made on or before February 18, 2020, and for which no extension of time fees are due.

By said Action, the specification's brief description refers to Fig. 8, but the drawings do not include a drawing with that designation.

By way of this Response, Applicant is submitting a Substitute Specification so as to overcome the objections raised in this Notice. An Annotated Specification is also attached herewith (see Page 10).

Statement

The content of the Substitute Specification includes no new matter.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: January 9, 2020

Inventors: Roderick Allen GAMMONS, Andrew FRANCIS and
Roderick Aaron GAMMONS

Title: LIGHTING SYSTEM AND CONTROL THEREOF

Related Applications

This application claims the benefit of priority of U.S. Provisional Patent Application No. 62/319,809 filed on April 8, 2016, and United Kingdom Patent Application No. 1606907.2 filed on April 20, 2016. The contents of the above applications are incorporated herein by reference in their entirety.

Field and Background of invention

This invention 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.

In the film, broadcast and TV industry a lighting controller called a 'flicker box' which is independent of a lighting device, is used to produce flickering light effects to mimic flickering light for example from a fire place, candle, electrical spark or lightning for on set television/broadcast production use.

The flicker effect provided by these devices is typically created using the analogue circuitry modulators contained within the 'flicker box', controlled manually by dials and levers. Use of a flicker box is typically a complex, costly and time consuming process that requires the setup, connection and control of multiple pieces of hardware typically including external Digital Multiplex (DMX) and power distribution devices, as well as typically requiring a physical wired connection to the 'hot' light source desired to be controlled.

Typically such 'flicker boxes' require specialist knowledge and understanding to operate and remain inaccessible or 'out of reach' to lower budget television

productions.

Furthermore, many 'flicker boxes' are incompatible with LED light sources, and such systems require the use of 'hot' incandescent light sources which are energy inefficient and also pose health and safety risks to those working on set, typically therefore requiring qualified lighting gaffers and operators.

An improved solution is desired.

Summary of the Invention

According to one aspect of the invention, there is provided a method for controlling a lighting device to produce user customisable lighting effect, the method comprising: 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.

According to another aspect of the invention there is provided a controller for controlling a lighting device to produce a lighting effect, the controller comprising: a calculating device adapted to calculate a time varying lighting value based on at least one simulation parameter; and an output adapted to control a lighting device according to the determined variation of lighting over time.

In a further aspect of the present invention there is provided a light with the built-in capability to generate a range of customizable cinematic special lighting effects, by modulating the speed, duration, power/brightness, and/or colour temperature of the light output.

Preferably, the parameters of the effects including but not limited to speed, duration, power/brightness and colour temperature can be controlled locally via a simple user interface on the light itself.

Preferably, the start/stop "triggering" of the effects can be controlled locally via a simple user interface on the light itself, remotely via WiFi, Bluetooth, Zigbee

or wireless DMX from a smart phone or tablet, or from a wired 3.5mm minijack remote trigger, or a wired DMX trigger.

Preferably, the parameters of the effects can be controlled remotely via WiFi, Bluetooth, Zigbee or wireless DMX from a smart phone or tablet.

Preferably, the parameters of the effects can be controlled Via a serial communications interface (eg. RS232, USB or DMX) from a PC running custom lighting control software.

Preferably, the light source containing in built special effects is in the form of an LED lighting fixture. Alternatively it is in the form of or 'hot' light incandescent fixture.

Preferably, multiple lights may be connected together via wired DMX, or via WiFi, Bluetooth, Zigbee or wireless DMX to produce a synchronised large area special effect.

Preferably, when multiple lights are connected together to produce a synchronized large area special effect, the inter-relationship of those connected lights is customizable so as to allow all of the connected devices to fire at the same time if desired, or, to enable a staggered effect to take place over an extended time duration and with customizable power intensity, in order to create the effect that a static object is moving as the lights "chase" around a scene.

Preferably the method further comprises receiving said at least one simulation parameter for characterising a lighting effect.

So as to recreate realistic effects, preferably the at least one simulation parameter for characterising a lighting effect is random; preferably the at least one simulation parameter for characterising a lighting effect is random within predefined boundaries.

Preferably, the random simulation parameter is determined in dependence on one or more user-selectable simulation parameters. Preferably, the random simulation parameter is in a range determined in dependence on one or more user-selectable simulation parameters.

Preferably, the simulation parameter is a colour or colour temperature. Preferably, the colour or colour temperature varies in dependence on a brightness lighting value.

Preferably the simulation parameter is related to one or more of: a rate of increase of brightness; a rate of decrease of brightness; a rate of change of colour; a brightness; a local maximal brightness; a local minimal brightness; a brightness fluctuation period; and a colour fluctuation period.

Preferably, the method further comprises receiving a user input of one or more user-selectable simulation parameters and adapting the simulation in dependence on the one or more user-selectable simulation parameters.

Preferably, the simulation parameter comprises at least one of: a maximum brightness; a minimum brightness; a colour; a fluctuation period; and a trigger.

Preferably, the simulation parameter comprises a camera recording frequency, frame rate, or shutter speed.

Preferably, the system includes rolling shutter compensation enabling the minimum light pulse width to be adjusted to suit the shutter speed or frame rate of the user's camera in order to prevent 'strobing' due to the light effect being out of phase/sync with the frame rate of the camera, ensuring that each frame captured by the camera is fully illuminated.

Preferably the method further comprises receiving a recording frequency, frame rate, or shutter speed of a camera and calculating said time varying lighting

value based on said recording frequency, frame rate or shutter speed. Preferably, wherein the time varying lighting value is calculated so as to vary at a slower rate than said camera recording frequency, frame rate, or shutter speed. More preferably wherein the minimum pulse width of said time varying lighting value is longer than said recording frequency, frame rate or shutter speed.

Preferably, a light source can be designated as a 'master', and have connected 'slave' light sources which fire in synchronization with the 'master', or in a customizable sequence, with regard duration, power and/or colour temperature.

Preferably, the 'slave' light sources are connected to the 'master' light source via wired DMX, wireless DMX, wifi, Bluetooth, or RS232 sync cable.

Preferably, the light contained in built special effects, can be powered both from mains power, and/or via its own internal battery power source, providing greater flexibility and portability for location shooting.

Preferably, the light source is capable of producing customisable effects including, but not limited to: Fire, Lightning, Police light, TV simulation, Neon Flickering sign, Muzzle (gunshot), Welding, Spark/Short Circuit, Scan (e.g. fingerprint scanner), Papparrazi flashes, Propeller, (Nuclear) Explosion and Wormhole.

Preferably, the simulation iterates through repeated cycles of receiving at least one random simulation parameter and simulating the lighting effect.

Preferably, the lighting effect is designed to mimic at least one or more of: fire flickering; police light; television; lightning flashing; electrical sparking; and fireworks.

Preferably, the lighting value comprises brightness and/or colour data.

Preferably, the method further comprises converting brightness and/or colour data into lighting signals and outputting the lighting signal data.

Preferably, the method further comprises controlling one or more light in dependence on the output. Preferably, the controlling comprises changing the brightness and/or colour of the light.

Preferably, the method further comprises receiving a definition of a trigger event; said trigger event initiating said output of the time varying lighting value thereby to simulate a lighting effect.

Preferably, the method further comprises detecting an occurrence of the trigger event and outputting said time varying lighting value thereby to simulate a lighting effect.

Preferably, the method further comprises storing the calculated lighting value.

Preferably, the controlling is for a lighting system for videography, broadcast, cinematography, studio filming and/or location filming.

Preferably, the method further comprises controlling a plurality of lights in dependence on the output. Preferably, the said plurality of lights output different lighting values so as to simulate a lighting effect. Preferably, the method further comprises the output of said plurality of lights is offset in time. Preferably, the output of said plurality of lights overlap with one-another so as to simulate a moving light source.

Preferably, one light is a master light and the others of said plurality of lights are slaves.

According to another aspect of the invention there is provided a computing device adapted to perform a method as described herein.

According to another aspect of the invention there is provided a controller for a lighting device comprising the computing device as described herein.

According to another aspect of the invention there is provided a controller for controlling a lighting device to produce a lighting effect, the controller comprising: a calculating device adapted to calculate a time varying lighting value based on at least one simulation parameter; and an output adapted to control a lighting device according to the determined variation of lighting over time.

Preferably, the controller further comprises a random number source adapted to provide a random number for producing a random simulation parameter for characterising a lighting effect.

Preferably, the controller is adapted to control a plurality of lighting devices in dependence on the time varying lighting value.

Preferably, the controller comprises a wireless communication interface adapted for wireless communication with one or more lighting devices.

Preferably, the controller comprises an input interface adapted to receive a user input.

Preferably, the input interface comprises at least one of: a wireless communication interface; a dial; a slider; a display and buttons; and a touch screen.

Preferably, the controller further comprises a converter adapted to convert brightness and/or colour data from the simulator into lighting signals for output by the output.

According to another aspect of the invention there is provided a controller adapted to perform a method as described herein.

According to another aspect of the invention there is provided a lighting system comprising a controller as described herein and at least one lighting device.

Preferably, said controller and said lighting device are integrated in a combined unit.

Preferably, the lighting system further comprises a further lighting device separate from said controller.

Preferably, the lighting device is a lighting device for videography, broadcast, cinematography, studio filming and/or location filming.

The invention extends to any novel aspects or features described and/or illustrated herein.

Further features of the invention are characterised by the other independent and dependent claims

Any feature in one aspect of the invention may be applied to other aspects of the invention, in any appropriate combination. In particular, method aspects may be applied to apparatus aspects, and vice versa.

Furthermore, features implemented in hardware may be implemented in software, and vice versa. Any reference to software and hardware features herein should be construed accordingly.

Any apparatus feature as described herein may also be provided as a method feature, and vice versa. As used herein, means plus function features may be

expressed alternatively in terms of their corresponding structure, such as a suitably programmed processor and associated memory.

It should also be appreciated that particular combinations of the various features described and defined in any aspects of the invention can be implemented and/or supplied and/or used independently.

The invention also provides a computer program and a computer program product comprising software code adapted, when executed on a data processing apparatus, to perform any of the methods described herein, including any or all of their component steps.

The invention also provides a computer program and a computer program product comprising software code which, when executed on a data processing apparatus, comprises any of the apparatus features described herein.

The invention also provides a computer program and a computer program product having an operating system which supports a computer program for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein.

The invention also provides a computer readable medium having stored thereon the computer program as aforesaid.

The invention also provides a signal carrying the computer program as aforesaid, and a method of transmitting such a signal.

The invention extends to methods and/or apparatus substantially as herein described with reference to the accompanying drawings.

Brief Description of the Several Views of the Drawings

The invention will now be described by way of example, with references to the accompanying drawings in which:

Figure 1 is a schematic diagram of a 'flickerbox' lighting system;
Figure 2 is a schematic diagram of a further lighting system;
Figure 3 is a flow diagram of a method for adjusting a lighting device;
Figure 4 is a schematic diagram of a further lighting system;
Figure 5 shows a time/brightness plot for a system of linked lights;
Figure 6 is a graphic user interface for user input of simulation parameters; and
Figure 7 is a graph of light brightness over time.
~~Figure 8 is a flow diagram of a method for controlling a lighting device~~

Description of Specific Embodiments of the Invention

In the present description the term 'camera' may be understood to mean a camera (such as a digital camera, or 'film' camera) operable to record moving images. The lighting system may therefore be for a lighting system for videography, broadcasting, cinematography, studio filming and/or location filming.

Figure 1 shows a schematic diagram of a 'flickerbox' lighting control system. The system comprises an analogue effect simulator, 300, a DMX distribution hub 302, an AC power generator 306, an AC power distribution module 302 and a plurality of incandescent lights 102. The analogue effect simulator 300 simulates a lighting effect such as fire, or electrical sparking based on various parameters. The analogue effect simulator 300 produces data 106 such as brightness parameters that vary over time for producing the desired lighting effect. The data 106 is used to modulate the light 102 such that the desired lighting effect is produced. The user has very limited ability to alter many of the parameters to adapt the lighting effect as desired.

Figure 2 schematically shows an example where a lighting effect simulator 100 and the light 102 are integrated in a single studio lamp device 120. In one example, the light 102 is an array of LEDs, preferably of differing colours. This arrangement does

not require the DMX distribution hub 302, power elements 304, 306 as described above, and is more flexible in producing effects as will be described in more detail below. A microcontroller or other computing unit is integrated in the lamp device 120 for performing calculations. A control panel is provided at a back panel of the lamp device 120. The control panel can include for example buttons, rotary knobs, sliders, and/or a display/input panel for user input of parameters for simulating an effect. In a variant a simple digital interface is provided on the light itself for user input of simulation parameters to control the lighting effect. In another variant the lamp device 120 is adapted for communication with a wireless user device and receives user-selectable simulation parameters to control the lighting effect from the user device. The user device may for example be a tablet or smart phone with suitable hardware / software (e.g. an app) for receiving user input of simulation parameters and transmitting that data to the lamp device 120. The system of Figure 2 is simpler to set up and less expensive than that of Figure 1 as there are fewer pieces of hardware. Furthermore the energy inefficiency of 'hot light' systems (i.e. a 1K hot light consumes 1000 watt/hour, vs 38 watt per hour of current generation LED system), Systems such as that described in Figure 1 using a flicker box and typically 'hot lights' also suffer from the significant disadvantage that a hot light is a fixed colour of light, either daylight 5600K or most commonly tungsten 3200K. When recreating an effect such a lightning this effect would appear at the blue end of the colour spectrum i.e. 7000K+ so utilising a 3200K light for this would require an operator to climb up a ladder to apply one or more CTB (Colour temperature blue) filter(s) to the light in order to achieve the desired colour temperature.

Having the ability to control the special FX from the light source, which in itself is a bi-colour LED Fixture also entirely eliminates that aspect of the process, the user can simply adjust the colour temperature from the back of the unit, with a visible numeric display of that number eliminating significant time from the process.

This is also a significant limiting factor in the creation of effects such as fire which typically burn blue on hotter peaks. It would be possible using an LED light source containing in built special effects to reproduce both the warm "orange" light output near the tungsten end of the scale, whilst also adding a "colour swing blue" on the peaks from the same light source, something that

would not be possible using a legacy system.

Examples of user defined parameters that the light containing in built special effects can customize in simulating a lighting effect are now described in more detail:

- **Brightness**: The peak luminance of the effect from 1% to 100% of the lamp's available luminance output.
- **Colour**: For multicolour effects this sets the range of colours used over the spectrum of red, green and blue. For single colour effects it sets the colour temperature of the light.
- **Trigger**: To start the effect running. For example, a manual trigger may be selected for manually triggering the start of a lightning burst, TV screen, or other effect.
- **Frequency**: typically from 0.5Hz to 50Hz. This sets an average period between light peaks – e.g. a roaring fire may have a higher frequency than a single candle flame.
- **Depth**: typically from 0% to 90%. This sets a base level of illumination of the effect. For example a fire may have a base level of 50% illumination superimposed on a level varying from 50% to 100% to simulate flickering flames.
- **Rolling Shutter Compensation**: Film and TV cameras typically operate at frequencies between 24Hz and 60Hz. In order to provide consistent illumination during each camera frame, short time-period (e.g. stroboscopic) lighting effects should have a minimum pulse width which lasts at least one camera frame period. This parameter can be adjusted to suit the camera and frame rate.
- '**Colour Swing Blue**' simulates the effect of flame going up the chimney, 'peaks' within the fire effect can be switched to transition between yellow and blue, to match the colour of a flame, creating a more dynamic and 3D

fire effect. The brighter the 'spark' the more blue the light output is. The colour of the output is therefore dependent on the brightness of the output (or vice versa).

Further examples of lighting effects are for example to mimic television screen flicker, cinema illumination, illumination in a vehicle passing through a tunnel, or any situation where the lighting varies over time in a characteristic manner. A simulation can be defined that represents the characteristics of the lighting effect, and suitable random parameters can be used to introduce a realistic variance in the lighting effect.

In a variant the simulator operates with pre-defined parameters and random numbers, without further user input of parameters. This can still provide a realistic lighting effect, albeit with less adaptation to the user's preferences.

Figure 3 illustrates a simple example of a method for simulating a lighting effect. In a first step S1 simulation parameters are received, such as random parameters and/or user-selectable parameters. Where a random parameter is algorithmically generated it is only pseudo-random, but for the purposes of the simulation a pseudo-random parameter is sufficiently random for realistic simulation and is hence considered to be equivalent to a truly random parameter. In a second step S2 a simulation is performed based on a simulation model and the received parameters. The nature of the simulation model can vary greatly, depending on the lighting effect that is desired and the sophistication of the desired simulation. The simulation calculates how the lighting changes over time in order to produce the desired lighting effect. Following simulation in a third step S3 the lighting information determined by the simulation is output, for example to a lighting device, in order to produce the desired lighting effect.

Figure 4 schematically shows an example showing a master light source 102 built into a lighting control unit 130 and a 'slave' light source 102-1 separate from the lighting control unit. The lighting effect simulator 100 creates data 106 characterising a lighting effect and controls the master light 102 as described above. The data 106 is transmitted to the slave light 102-1 via (for example) a

serial communication interface (e.g. RS232, USB or DMX) or by wireless transmission (e.g. Wi-Fi®, Bluetooth® Zigbee®, or via a mobile communication network utilising protocols such as GSM (Groupe Special Mobile) 3GPP (3rd Generation Partnership), or 4G LTE (Long term evolution)). The additional 'slave' light source 102-1 thereby allows the production of a lighting effect with more than one light device but without duplication of controllers 130. Such additional light sources can for example increase the area of illumination or increase the power of the lighting effect.

The use of multiple lights 102 affords additional options for producing advanced effects. Figure 5 shows a time/brightness plot of a 'chase' effect. In this example, three lights produce outputs 200, 202 and 204 separated in time. In such a way, an effect of a light source (such as a passing car) can be replicated. The relative timing of the light sources can be adjusted depending on the relative location of the sources, and the speed of the effect to be replicated. It should be noted that the 'fade up' and 'fade down' portions of each light output 200, 202, 204 overlap with one-another to more accurately replicate the effect of a moving object, as opposed to a element jumping from one location to another.

Related effects utilising similar timing controls are be 'paparazzi' of multiple flashes coming from different locations, or a 'propeller' simulating a light source being obscured by a rotating propeller. The use of a single controller 130 may be used to control all of the lights 102 so as to ensure an appropriate delay (or absence of delay).

Figure 6 shows an example of a graphic user interface 800 for user input of simulation parameters. In the illustrated example the lighting effect to be simulated is a fire effect. The user can select a fire activity (with a slider positioned from 'low' to 'high') to set a frequency parameter as described above; a fire colour; a peak brightness; a baseline brightness to set a depth parameter as described above; and a camera frequency. A wide range of further parameters can be provided for user input, for example if the fire activity, brightness and/or colour is to change over time (to mimic a fire dying down and

reducing to embers or to mimic addition of fuel to a fire). The user may also be provided with an option of superimposing different types of lighting effects, for example to mimic candlelight during a lightning storm.

In one example, the rolling shutter compensation controls a minimum light pulse to match the shutter speed or frame rate of the user's camera (camera frequency) to ensure even illumination across the frame and eliminate possible strobing. Therefore, the duration of the light pulse is longer than one period of the camera's recording frequency, or in other words, the lighting value varies at a lower frequency than the frequency of the camera.

The lighting effect simulator 100 typically provides data 106 in the form of brightness and/or colour values that vary over time. In order to cause the light 102 to produce the desired effect a lighting data converter may convert the data 106 from the lighting effect simulator 100 into a suitable signal for a particular light 102. For example for a light emitting diode (LED) array lighting the data conversion occurs at an LED lamp control logic that produces and supplies a separate pulse-width-modulation output for each LED colour to an LED drive circuit. A lighting data converter may be provided separately from the lighting effect simulator 100 and the light 102 or it may be integrated with one or the other or both.

The light 102 in one example comprises an array of different types of LEDs, preferably red, green, blue and white LEDs, or a bi colour fixture comprising warm typically 2800K LEDs and 'cool' 7000K LEDs which blend together to create a range of colour from 3200-6300K. The array may be a panel, flood light, spot light, a cluster or any other arrangement of LEDs. This provides the ability for the lighting to produce light of any visible colour by varying the relative intensities of the different LEDs. The lighting may alternatively be a filament (incandescent), halogen or other type of lighting.

The simulation may be performed on the fly, with lighting data values output from the simulator 100 to the light 102 in near-real time, or the simulation may be performed in advance and the lighting data values output for storage and later use to enable quick reproduction on set or location.

The lighting control system can reduce the number of devices required to provide lighting effects, especially where the lighting effect simulator is integrated in a light. This can significantly reduce equipment costs and time required to set up equipment. The system is also more portable allowing power from its on internal power source or battery instead of requiring an external power generator or mains powered solution. The lighting control system can be used for studio and location filming lighting systems, and more generally for videography, broadcast and/or cinematography.

A non-exhaustive list of example effects that may be produced by the system are as follows:

- Strobe - The strobe range in one example is from 1hz up to 4hz. The last used strobe parameters are stored in non-volatile memory (which applies to any effect described herein). A user may rotate a knob on the device to adjust the 'duty cycle' (flash duration) to eliminate issues with rolling shutter cameras.
- Lightning – this effect simulates lightning in a random manner, but a user may control the speed at which the lighting bursts re-occur. This effect is most realistic if the brightness is set to 100% and colour temperature is set at 6000K. A user may rotate a knob on the device to adjust the 'duty cycle' (flash duration) to eliminate issues with rolling shutter cameras. The duration of the lightning flashes in one example is 20ms. The lightning strikes in one example come in bursts of between 2 and 8 random length pulses.
- Throb - Throb is a regular smoothly pulsing light
- Weld - this effect replicates a welding arc.
- Colour cycle – This is a regular smoothly pulsing light which fades between the tungsten and blue LEDs
- Fire – this effect replicates a fire with 'dancing flames' as is described in more detail below.
- Police – This effect is an emulation of an emergency services light, and may be most realistic in blue light.

- Television – This effect is an emulation of someone watching TV.

It should be appreciated that due to the nature of the light 102, the effects may be customised by a user, for example, the frequency/speed, peak/minimum brightness or colour / colour temperature may be dynamically changed, and/or made to vary over time in a customised manner. Such user input simulation parameters may be stored in memory 220 and recalled from the memory 220 at a later time. The effects may be triggered on cue (for example from a director) by sending a signal over a wired remote trigger or wireless device.

It should also be appreciated that multiple effects may be emulated simultaneously, for example, fire and lightning may be present simultaneously using a single lighting unit.

An example of a simulation for producing a fire effect is now described in more detail.

Fire is simulated as a series of 'sparks'. Each spark has the following random parameters:

- ***Interval***: New sparks are generated at an interval which varies randomly between a defined maximum and minimum interval.
- ***Peak***: The peak luminance of each spark varies randomly between a defined minimum and maximum.
- ***Ramp-up time***: The luminance of each spark ramps up to the peak at a randomly generated rate.
- ***Fade-down time***: The fade from the peak is linked to the ramp-up time but is much slower – simulating the gradual decline in luminance of a burning ember.

If the interval is short with respect to the ramp-up and fade-down time, then sparks can overlap in time – in which case the brightest spark determines the

lamp luminance.

The lighting effect simulator typically cycles round a loop calculating new lamp brightness and colour values. Alternatively the calculation can be triggered by an interrupt generated by a timer. The calculation is typically performed every 250μs.

The duration of each spark can be controlled by choosing whether or not to perform a new brightness calculation based on the value of a counter which is decremented every time an interrupt occurs. When the counter reaches zero it is either reset to its previous start value or, for a new spark, a new count start value is randomly generated. In this way each spark has a different speed, duration and peak – simulating the look of a real flame.

Generating the light output with the simulation provides a greater level of user adjustment and control than that produced by simply sampling the intensity of a real flame and replaying it at different speeds.

An example sequence of instructions for the simulation is as follows:

At the end of a spark up and down period:

- Reset duration for next spark to between 2.5s to 5s
- Generate new brightness targets for the next spark between 12.5% and 100% of current maximum brightness setting.
- Offset the random brightness targets by the requested brightness floor value
- Set the new peak brightness target for the new spark
- Ensure the new targets are greater than the existing faded brightness value to prevent downward jumps
- Set the fade direction to UP

Start new animation frame:

- Calculate brightness fade step sizes:
    - Fade up fast, progressively larger fade step sizes
    - Change fade direction at peak
    - Fade down slow, progressively smaller fade step sizes
- Set the frame rate for the new spark to a random value
    - prevent the curtailment of a long fade by a new short pulse: if the faded brightness is still > 25% of max then don't allow new FramePeriod to be less than old.

Figure 7 shows an example of the brightness varying over time produced according to a simulation as described above. Two peaks can be seen, one reaching 100% intensity and the other reaching 91% intensity. The first peak fades up from 10% to 100% in 0.85 seconds, and back down to 56% in 0.75 seconds. The second peak fades up from 56% to 91% in 0.33 seconds, and back down to 60% in 1.07 seconds. The fade up starts shallower and becomes steeper as it progresses. The fade down starts steep and becomes shallower as it progresses. A toggle switch is also shown which toggles between 'Colour Swing Blue' and 'Monochrome'. Colour Swing Blue represents modifying the colour of peaks in brightness so as to replicate the increased temperature of sparks in a fire, Monochrome may be used when (for example) filming in black and white, or when altering colour of the effect may have deleterious effects on other elements of the scene (for example, rendering text difficult to read).

An example of a simulation for producing a lightning effect is now described in more detail. Lightning is simulated as a sequence of 'bursts' or groups of flashes. The number of flashes in each burst, the delay between bursts, the delay between each flash within the burst, and the amplitude of each flash are all set randomly within certain boundaries. The minimum 'on' time period of each flash can be set by the user to ensure full illumination of the camera frame. The lamp can also be set into a mode where a burst of flashes is triggered by the push of a button. In this way the effect can be triggered on demand by the user.

An example sequence of instructions for the simulation of lightning, with a series of bursts of flashes, is as follows:

At the end of a burst of flashes recalculate the parameters for the next burst:

- Reset the number of flashes in a burst to a random number between 2 and 10
- Reset the period to next burst to a random number between 2.5 and 5s.

Calculate parameters for each flash in a burst of flashes:

- Randomly modulate brightness of each flash slightly
- Reset the time to next flash to a random number between 8ms and 220ms
- Reset the 'on' flash duration to a random number between 8ms and 120ms
    - ensure a minimum off-period is maintained between flashes
- For the final flash set the duration to a random number between 10ms and 113ms

The lighting system, lighting effect simulator, lighting controller, lighting device, computing device, and/or computer program product may have one or more of the following features:

- built-in capability to generate a range of cinematic special effects by modulating the colour and brightness of the light output.
- the parameters of the effects can be controlled via a simple user interface on the lamp itself.
- the parameters of the effects can be controlled remotely via WiFi or DMX from a smart phone or tablet.
- networked with other lights to produce a synchronised large area special effect.

- minimum light pulse width can be adjusted to suit the shutter speed or frame rate of the user's camera to ensure even illumination across the frame.

Various other modifications will be apparent to those skilled in the art. It will be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention. For example, it should be appreciated that the effect simulator 100 or the computing device 130 may be separate from any light 102, and connectable to lights 102, by either a wired or wireless connection.

The lighting effect simulator 100 may be provided by way of a suitably adapted computing device 120 or 130 such as a PC, tablet or smart phone, with suitable software for user input of simulation parameters. The computing device 120 or 130 may be a suitably adapted light controller device with suitable controls for user input of simulation parameters

Reference numerals appearing in the claims are by way of illustration only and shall have no limiting effect on the scope of the claims.

APPLICATION FOR PATENT

Inventors: Roderick Allen GAMMONS, Andrew FRANCIS and
Roderick Aaron GAMMONS

Title: LIGHTING SYSTEM AND CONTROL THEREOF

Related Applications

This application claims the benefit of priority of U.S. Provisional Patent Application No. 62/319,809 filed on April 8, 2016, and United Kingdom Patent Application No. 1606907.2 filed on April 20, 2016. The contents of the above applications are incorporated herein by reference in their entirety.

Field and Background of invention

This invention 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.

In the film, broadcast and TV industry a lighting controller called a 'flicker box' which is independent of a lighting device, is used to produce flickering light effects to mimic flickering light for example from a fire place, candle, electrical spark or lightning for on set television/broadcast production use.

The flicker effect provided by these devices is typically created using the analogue circuitry modulators contained within the 'flicker box', controlled manually by dials and levers. Use of a flicker box is typically a complex, costly and time consuming process that requires the setup, connection and control of multiple pieces of hardware typically including external Digital Multiplex (DMX) and power distribution devices, as well as typically requiring a physical wired connection to the 'hot' light source desired to be controlled.

Typically such 'flicker boxes' require specialist knowledge and understanding to operate and remain inaccessible or 'out of reach' to lower budget television productions.

Furthermore, many 'flicker boxes' are incompatible with LED light sources, and such systems require the use of 'hot' incandescent light sources which are energy inefficient and also pose health and safety risks to those working on set, typically therefore requiring qualified lighting gaffers and operators.

An improved solution is desired.

Summary of the Invention

According to one aspect of the invention, there is provided a method for controlling a lighting device to produce user customisable lighting effect, the method comprising: 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.

According to another aspect of the invention there is provided a controller for controlling a lighting device to produce a lighting effect, the controller comprising: a calculating device adapted to calculate a time varying lighting value based on at least one simulation parameter; and an output adapted to control a lighting device according to the determined variation of lighting over time.

In a further aspect of the present invention there is provided a light with the built-in capability to generate a range of customizable cinematic special lighting effects, by modulating the speed, duration, power/brightness, and/or colour temperature of the light output.

Preferably, the parameters of the effects including but not limited to speed,

duration, power/brightness and colour temperature can be controlled locally via a simple user interface on the light itself.

Preferably, the start/stop "triggering" of the effects can be controlled locally via a simple user interface on the light itself, remotely via WiFi, Bluetooth, Zigbee or wireless DMX from a smart phone or tablet, or from a wired 3.5mm minijack remote trigger, or a wired DMX trigger.

Preferably, the parameters of the effects can be controlled remotely via WiFi, Bluetooth, Zigbee or wireless DMX from a smart phone or tablet.

Preferably, the parameters of the effects can be controlled Via a serial communications interface (eg. RS232, USB or DMX) from a PC running custom lighting control software.

Preferably, the light source containing in built special effects is in the form of an LED lighting fixture. Alternatively it is in the form of or 'hot' light incandescent fixture.

Preferably, multiple lights may be connected together via wired DMX, or via WiFi, Bluetooth, Zigbee or wireless DMX to produce a synchronised large area special effect.

Preferably, when multiple lights are connected together to produce a synchronized large area special effect, the inter-relationship of those connected lights is customizable so as to allow all of the connected devices to fire at the same time if desired, or, to enable a staggered effect to take place over an extended time duration and with customizable power intensity, in order to create the effect that a static object is moving as the lights "chase" around a scene.

Preferably the method further comprises receiving said at least one simulation parameter for characterising a lighting effect.

So as to recreate realistic effects, preferably the at least one simulation parameter for characterising a lighting effect is random; preferably the at least one simulation parameter for characterising a lighting effect is random within predefined boundaries.

Preferably, the random simulation parameter is determined in dependence on one or more user-selectable simulation parameters. Preferably, the random simulation parameter is in a range determined in dependence on one or more user-selectable simulation parameters.

Preferably, the simulation parameter is a colour or colour temperature. Preferably, the colour or colour temperature varies in dependence on a brightness lighting value.

Preferably the simulation parameter is related to one or more of: a rate of increase of brightness; a rate of decrease of brightness; a rate of change of colour; a brightness; a local maximal brightness; a local minimal brightness; a brightness fluctuation period; and a colour fluctuation period.

Preferably, the method further comprises receiving a user input of one or more user-selectable simulation parameters and adapting the simulation in dependence on the one or more user-selectable simulation parameters.

Preferably, the simulation parameter comprises at least one of: a maximum brightness; a minimum brightness; a colour; a fluctuation period; and a trigger.

Preferably, the simulation parameter comprises a camera recording frequency, frame rate, or shutter speed.

Preferably, the system includes rolling shutter compensation enabling the minimum light pulse width to be adjusted to suit the shutter speed or frame rate of the user's camera in order to prevent 'strobing' due to the light effect being out of phase/sync with the frame rate of the camera, ensuring that each frame captured by the camera is fully illuminated.

Preferably the method further comprises receiving a recording frequency, frame rate, or shutter speed of a camera and calculating said time varying lighting value based on said recording frequency, frame rate or shutter speed. Preferably, wherein the time varying lighting value is calculated so as to vary at a slower rate than said camera recording frequency, frame rate, or shutter speed. More preferably wherein the minimum pulse width of said time varying lighting value is longer than said recording frequency, frame rate or shutter speed.

Preferably, a light source can be designated as a 'master', and have connected 'slave' light sources which fire in synchronization with the 'master', or in a customizable sequence, with regard duration, power and/or colour temperature.

Preferably, the 'slave' light sources are connected to the 'master' light source via wired DMX, wireless DMX, wifi, Bluetooth, or RS232 sync cable.

Preferably, the light contained in built special effects, can be powered both from mains power, and/or via its own internal battery power source, providing greater flexibility and portability for location shooting.

Preferably, the light source is capable of producing customisable effects including, but not limited to: Fire, Lightning, Police light, TV simulation, Neon Flickering sign, Muzzle (gunshot), Welding, Spark/Short Circuit, Scan (e.g.

fingerprint scanner), Papparrazi flashes, Propeller, (Nuclear) Explosion and Wormhole.

Preferably, the simulation iterates through repeated cycles of receiving at least one random simulation parameter and simulating the lighting effect.

Preferably, the lighting effect is designed to mimic at least one or more of: fire flickering; police light; television; lightning flashing; electrical sparking; and fireworks.

Preferably, the lighting value comprises brightness and/or colour data.

Preferably, the method further comprises converting brightness and/or colour data into lighting signals and outputting the lighting signal data.

Preferably, the method further comprises controlling one or more light in dependence on the output. Preferably, the controlling comprises changing the brightness and/or colour of the light.

Preferably, the method further comprises receiving a definition of a trigger event; said trigger event initiating said output of the time varying lighting value thereby to simulate a lighting effect.

Preferably, the method further comprises detecting an occurrence of the trigger event and outputting said time varying lighting value thereby to simulate a lighting effect.

Preferably, the method further comprises storing the calculated lighting value.

Preferably, the controlling is for a lighting system for videography, broadcast, cinematography, studio filming and/or location filming.

Preferably, the method further comprises controlling a plurality of lights in dependence on the output. Preferably, the said plurality of lights output different lighting values so as to simulate a lighting effect. Preferably, the method further comprises the output of said plurality of lights is offset in time. Preferably, the output of said plurality of lights overlap with one-another so as to simulate a moving light source.

Preferably, one light is a master light and the others of said plurality of lights are slaves.

According to another aspect of the invention there is provided a computing device adapted to perform a method as described herein.

According to another aspect of the invention there is provided a controller for a lighting device comprising the computing device as described herein.

According to another aspect of the invention there is provided a controller for controlling a lighting device to produce a lighting effect, the controller comprising: a calculating device adapted to calculate a time varying lighting value based on at least one simulation parameter; and an output adapted to control a lighting device according to the determined variation of lighting over time.

Preferably, the controller further comprises a random number source adapted to provide a random number for producing a random simulation parameter for characterising a lighting effect.

Preferably, the controller is adapted to control a plurality of lighting devices in dependence on the time varying lighting value.

Preferably, the controller comprises a wireless communication interface adapted for wireless communication with one or more lighting devices.

Preferably, the controller comprises an input interface adapted to receive a user input.

Preferably, the input interface comprises at least one of: a wireless communication interface; a dial; a slider; a display and buttons; and a touch screen.

Preferably, the controller further comprises a converter adapted to convert brightness and/or colour data from the simulator into lighting signals for output by the output.

According to another aspect of the invention there is provided a controller adapted to perform a method as described herein.

According to another aspect of the invention there is provided a lighting system comprising a controller as described herein and at least one lighting device.

Preferably, said controller and said lighting device are integrated in a combined unit.

Preferably, the lighting system further comprises a further lighting device separate from said controller.

Preferably, the lighting device is a lighting device for videography, broadcast, cinematography, studio filming and/or location filming.

The invention extends to any novel aspects or features described and/or illustrated herein.

Further features of the invention are characterised by the other independent and dependent claims

Any feature in one aspect of the invention may be applied to other aspects of the invention, in any appropriate combination. In particular, method aspects may be applied to apparatus aspects, and vice versa.

Furthermore, features implemented in hardware may be implemented in software, and vice versa. Any reference to software and hardware features herein should be construed accordingly.

Any apparatus feature as described herein may also be provided as a method feature, and vice versa. As used herein, means plus function features may be expressed alternatively in terms of their corresponding structure, such as a suitably programmed processor and associated memory.

It should also be appreciated that particular combinations of the various features described and defined in any aspects of the invention can be implemented and/or supplied and/or used independently.

The invention also provides a computer program and a computer program product comprising software code adapted, when executed on a data

processing apparatus, to perform any of the methods described herein, including any or all of their component steps.

The invention also provides a computer program and a computer program product comprising software code which, when executed on a data processing apparatus, comprises any of the apparatus features described herein.

The invention also provides a computer program and a computer program product having an operating system which supports a computer program for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein.

The invention also provides a computer readable medium having stored thereon the computer program as aforesaid.

The invention also provides a signal carrying the computer program as aforesaid, and a method of transmitting such a signal.

The invention extends to methods and/or apparatus substantially as herein described with reference to the accompanying drawings.

Brief Description of the Several Views of the Drawings

The invention will now be described by way of example, with references to the accompanying drawings in which:

Figure 1 is a schematic diagram of a 'flickerbox' lighting system;
Figure 2 is a schematic diagram of a further lighting system;
Figure 3 is a flow diagram of a method for adjusting a lighting device;
Figure 4 is a schematic diagram of a further lighting system;

Figure 5 shows a time/brightness plot for a system of linked lights;
Figure 6 is a graphic user interface for user input of simulation parameters; and
Figure 7 is a graph of light brightness over time.

Description of Specific Embodiments of the Invention

In the present description the term ‘camera’ may be understood to mean a camera (such as a digital camera, or ‘film’ camera) operable to record moving images. The lighting system may therefore be for a lighting system for videography, broadcasting, cinematography, studio filming and/or location filming.

Figure 1 shows a schematic diagram of a ‘flickerbox’ lighting control system. The system comprises an analogue effect simulator, 300, a DMX distribution hub 302, an AC power generator 306, an AC power distribution module 302 and a plurality of incandescent lights 102. The analogue effect simulator 300 simulates a lighting effect such as fire, or electrical sparking based on various parameters. The analogue effect simulator 300 produces data 106 such as brightness parameters that vary over time for producing the desired lighting effect. The data 106 is used to modulate the light 102 such that the desired lighting effect is produced. The user has very limited ability to alter many of the parameters to adapt the lighting effect as desired.

Figure 2 schematically shows an example where a lighting effect simulator 100 and the light 102 are integrated in a single studio lamp device 120. In one example, the light 102 is an array of LEDs, preferably of differing colours. This arrangement does not require the DMX distribution hub 302, power elements 304, 306 as described above, and is more flexible in producing effects as will be described in more detail below. A microcontroller or other computing unit is integrated in the lamp device 120 for performing calculations. A control panel is provided at a back panel of the lamp device 120. The control panel can include for example buttons, rotary knobs, sliders, and/or a display/input panel for user input of parameters for simulating an

effect. In a variant a simple digital interface is provided on the light itself for user input of simulation parameters to control the lighting effect. In another variant the lamp device 120 is adapted for communication with a wireless user device and receives user-selectable simulation parameters to control the lighting effect from the user device. The user device may for example be a tablet or smart phone with suitable hardware / software (e.g. an app) for receiving user input of simulation parameters and transmitting that data to the lamp device 120. The system of Figure 2 is simpler to set up and less expensive than that of Figure 1 as there are fewer pieces of hardware. Furthermore the energy inefficiency of 'hot light' systems (i.e. a 1K hot light consumes 1000 watt/hour, vs 38 watt per hour of current generation LED system), Systems such as that described in Figure 1 using a flicker box and typically 'hot lights' also suffer from the significant disadvantage that a hot light is a fixed colour of light, either daylight 5600K or most commonly tungsten 3200K. When recreating an effect such a lightning this effect would appear at the blue end of the colour spectrum i.e. 7000K+ so utilising a 3200K light for this would require an operator to climb up a ladder to apply one or more CTB (Colour temperature blue) filter(s) to the light in order to achieve the desired colour temperature.

Having the ability to control the special FX from the light source, which in itself is a bi-colour LED Fixture also entirely eliminates that aspect of the process, the user can simply adjust the colour temperature from the back of the unit, with a visible numeric display of that number eliminating significant time from the process.

This is also a significant limiting factor in the creation of effects such as fire which typically burn blue on hotter peaks. It would be possible using an LED light source containing in built special effects to reproduce both the warm "orange" light output near the tungsten end of the scale, whilst also adding a "colour swing blue" on the peaks from the same light source, something that would not be possible using a legacy system.

Examples of user defined parameters that the light containing in built special

effects can customize in simulating a lighting effect are now described in more detail:

- **Brightness**: The peak luminance of the effect from 1% to 100% of the lamp's available luminance output.
- **Colour**: For multicolour effects this sets the range of colours used over the spectrum of red, green and blue. For single colour effects it sets the colour temperature of the light.
- **Trigger**: To start the effect running. For example, a manual trigger may be selected for manually triggering the start of a lightning burst, TV screen, or other effect.
- **Frequency**: typically from 0.5Hz to 50Hz. This sets an average period between light peaks – e.g. a roaring fire may have a higher frequency than a single candle flame.
- **Depth**: typically from 0% to 90%. This sets a base level of illumination of the effect. For example a fire may have a base level of 50% illumination superimposed on a level varying from 50% to 100% to simulate flickering flames.
- **Rolling Shutter Compensation**: Film and TV cameras typically operate at frequencies between 24Hz and 60Hz. In order to provide consistent illumination during each camera frame, short time-period (e.g. stroboscopic) lighting effects should have a minimum pulse width which lasts at least one camera frame period. This parameter can be adjusted to suit the camera and frame rate.
- '**Colour Swing Blue**' simulates the effect of flame going up the chimney, 'peaks' within the fire effect can be switched to transition between yellow and blue, to match the colour of a flame, creating a more dynamic and 3D

fire effect. The brighter the 'spark' the more blue the light output is. The colour of the output is therefore dependent on the brightness of the output (or vice versa).

Further examples of lighting effects are for example to mimic television screen flicker, cinema illumination, illumination in a vehicle passing through a tunnel, or any situation where the lighting varies over time in a characteristic manner. A simulation can be defined that represents the characteristics of the lighting effect, and suitable random parameters can be used to introduce a realistic variance in the lighting effect.

In a variant the simulator operates with pre-defined parameters and random numbers, without further user input of parameters. This can still provide a realistic lighting effect, albeit with less adaptation to the user's preferences.

Figure 3 illustrates a simple example of a method for simulating a lighting effect. In a first step S1 simulation parameters are received, such as random parameters and/or user-selectable parameters. Where a random parameter is algorithmically generated it is only pseudo-random, but for the purposes of the simulation a pseudo-random parameter is sufficiently random for realistic simulation and is hence considered to be equivalent to a truly random parameter. In a second step S2 a simulation is performed based on a simulation model and the received parameters. The nature of the simulation model can vary greatly, depending on the lighting effect that is desired and the sophistication of the desired simulation. The simulation calculates how the lighting changes over time in order to produce the desired lighting effect. Following simulation in a third step S3 the lighting information determined by the simulation is output, for example to a lighting device, in order to produce the desired lighting effect.

Figure 4 schematically shows an example showing a master light source 102 built into a lighting control unit 130 and a 'slave' light source 102-1 separate

from the lighting control unit. The lighting effect simulator 100 creates data 106 characterising a lighting effect and controls the master light 102 as described above. The data 106 is transmitted to the slave light 102-1 via (for example) a serial communication interface (e.g. RS232, USB or DMX) or by wireless transmission (e.g. Wi-Fi®, Bluetooth® Zigbee®, or via a mobile communication network utilising protocols such as GSM (Groupe Special Mobile) 3GPP (3rd Generation Partnership), or 4G LTE (Long term evolution)). The additional 'slave' light source 102-1 thereby allows the production of a lighting effect with more than one light device but without duplication of controllers 130. Such additional light sources can for example increase the area of illumination or increase the power of the lighting effect.

The use of multiple lights 102 affords additional options for producing advanced effects. Figure 5 shows a time/brightness plot of a 'chase' effect. In this example, three lights produce outputs 200, 202 and 204 separated in time. In such a way, an effect of a light source (such as a passing car) can be replicated. The relative timing of the light sources can be adjusted depending on the relative location of the sources, and the speed of the effect to be replicated. It should be noted that the 'fade up' and 'fade down' portions of each light output 200, 202, 204 overlap with one-another to more accurately replicate the effect of a moving object, as opposed to a element jumping from one location to another.

Related effects utilising similar timing controls are be 'paparazzi' of multiple flashes coming from different locations, or a 'propeller' simulating a light source being obscured by a rotating propeller. The use of a single controller 130 may be used to control all of the lights 102 so as to ensure an appropriate delay (or absence of delay).

Figure 6 shows an example of a graphic user interface 800 for user input of simulation parameters. In the illustrated example the lighting effect to be simulated is a fire effect. The user can select a fire activity (with a slider

positioned from 'low' to 'high') to set a frequency parameter as described above; a fire colour; a peak brightness; a baseline brightness to set a depth parameter as described above; and a camera frequency. A wide range of further parameters can be provided for user input, for example if the fire activity, brightness and/or colour is to change over time (to mimic a fire dying down and reducing to embers or to mimic addition of fuel to a fire). The user may also be provided with an option of superimposing different types of lighting effects, for example to mimic candlelight during a lightning storm.

In one example, the rolling shutter compensation controls a minimum light pulse to match the shutter speed or frame rate of the user's camera (camera frequency) to ensure even illumination across the frame and eliminate possible strobing. Therefore, the duration of the light pulse is longer than one period of the camera's recording frequency, or in other words, the lighting value varies at a lower frequency than the frequency of the camera.

The lighting effect simulator 100 typically provides data 106 in the form of brightness and/or colour values that vary over time. In order to cause the light 102 to produce the desired effect a lighting data converter may convert the data 106 from the lighting effect simulator 100 into a suitable signal for a particular light 102. For example for a light emitting diode (LED) array lighting the data conversion occurs at an LED lamp control logic that produces and supplies a separate pulse-width-modulation output for each LED colour to an LED drive circuit. A lighting data converter may be provided separately from the lighting effect simulator 100 and the light 102 or it may be integrated with one or the other or both.

The light 102 in one example comprises an array of different types of LEDs, preferably red, green, blue and white LEDs, or a bi colour fixture comprising warm typically 2800K LEDs and 'cool' 7000K LEDs which blend together to create a range of colour from 3200-6300K. The array may be a panel, flood light, spot light, a cluster or any other arrangement of LEDs. This provides the

ability for the lighting to produce light of any visible colour by varying the relative intensities of the different LEDs. The lighting may alternatively be a filament (incandescent), halogen or other type of lighting.

The simulation may be performed on the fly, with lighting data values output from the simulator 100 to the light 102 in near-real time, or the simulation may be performed in advance and the lighting data values output for storage and later use to enable quick reproduction on set or location.

The lighting control system can reduce the number of devices required to provide lighting effects, especially where the lighting effect simulator is integrated in a light. This can significantly reduce equipment costs and time required to set up equipment. The system is also more portable allowing power from its on internal power source or battery instead of requiring an external power generator or mains powered solution. The lighting control system can be used for studio and location filming lighting systems, and more generally for videography, broadcast and/or cinematography.

A non-exhaustive list of example effects that may be produced by the system are as follows:

- Strobe - The strobe range in one example is from 1hz up to 4hz. The last used strobe parameters are stored in non-volatile memory (which applies to any effect described herein). A user may rotate a knob on the device to adjust the 'duty cycle' (flash duration) to eliminate issues with rolling shutter cameras.
- Lightning – this effect simulates lightning in a random manner, but a user may control the speed at which the lighting bursts re-occur. This effect is most realistic if the brightness is set to 100% and colour temperature is set at 6000K. A user may rotate a knob on the device to adjust the 'duty cycle' (flash duration) to eliminate issues with rolling shutter

cameras. The duration of the lightning flashes in one example is 20ms. The lightning strikes in one example come in bursts of between 2 and 8 random length pulses.

- Throb - Throb is a regular smoothly pulsing light
- Weld - this effect replicates a welding arc.
- Colour cycle – This is a regular smoothly pulsing light which fades between the tungsten and blue LEDs
- Fire – this effect replicates a fire with 'dancing flames' as is described in more detail below.
- Police – This effect is an emulation of an emergency services light, and may be most realistic in blue light.
- Television – This effect is an emulation of someone watching TV.

It should be appreciated that due to the nature of the light 102, the effects may be customised by a user, for example, the frequency/speed, peak/minimum brightness or colour / colour temperature may be dynamically changed, and/or made to vary over time in a customised manner. Such user input simulation parameters may be stored in memory 220 and recalled from the memory 220 at a later time. The effects may be triggered on cue (for example from a director) by sending a signal over a wired remote trigger or wireless device.

It should also be appreciated that multiple effects may be emulated simultaneously, for example, fire and lightning may be present simultaneously using a single lighting unit.

An example of a simulation for producing a fire effect is now described in more detail.

Fire is simulated as a series of 'sparks'. Each spark has the following random parameters:

- ***Interval***: New sparks are generated at an interval which varies randomly between a defined maximum and minimum interval.
- ***Peak***: The peak luminance of each spark varies randomly between a defined minimum and maximum.
- ***Ramp-up time***: The luminance of each spark ramps up to the peak at a randomly generated rate.
- ***Fade-down time***: The fade from the peak is linked to the ramp-up time but is much slower – simulating the gradual decline in luminance of a burning ember.

If the interval is short with respect to the ramp-up and fade-down time, then sparks can overlap in time – in which case the brightest spark determines the lamp luminance.

The lighting effect simulator typically cycles round a loop calculating new lamp brightness and colour values. Alternatively the calculation can be triggered by an interrupt generated by a timer. The calculation is typically performed every 250μs.

The duration of each spark can be controlled by choosing whether or not to perform a new brightness calculation based on the value of a counter which is decremented every time an interrupt occurs. When the counter reaches zero it is either reset to its previous start value or, for a new spark, a new count start value is randomly generated. In this way each spark has a different speed, duration and peak – simulating the look of a real flame.

Generating the light output with the simulation provides a greater level of user adjustment and control than that produced by simply sampling the intensity of a real flame and replaying it at different speeds.

An example sequence of instructions for the simulation is as follows:

At the end of a spark up and down period:

- Reset duration for next spark to between 2.5s to 5s
- Generate new brightness targets for the next spark between 12.5% and 100% of current maximum brightness setting.
- Offset the random brightness targets by the requested brightness floor value
- Set the new peak brightness target for the new spark
- Ensure the new targets are greater than the existing faded brightness value to prevent downward jumps
- Set the fade direction to UP

Start new animation frame:

- Calculate brightness fade step sizes:
    - Fade up fast, progressively larger fade step sizes
    - Change fade direction at peak
    - Fade down slow, progressively smaller fade step sizes
- Set the frame rate for the new spark to a random value
    - prevent the curtailment of a long fade by a new short pulse: if the faded brightness is still > 25% of max then don't allow new FramePeriod to be less than old.

Figure 7 shows an example of the brightness varying over time produced according to a simulation as described above. Two peaks can be seen, one reaching 100% intensity and the other reaching 91% intensity. The first peak fades up from 10% to 100% in 0.85 seconds, and back down to 56% in 0.75 seconds. The second peak fades up from 56% to 91% in 0.33 seconds, and back down to 60% in 1.07 seconds. The fade up starts shallower and becomes steeper as it progresses. The fade down starts steep and becomes shallower

as it progresses. A toggle switch is also shown which toggles between 'Colour Swing Blue' and 'Monochrome'. Colour Swing Blue represents modifying the colour of peaks in brightness so as to replicate the increased temperature of sparks in a fire, Monochrome may be used when (for example) filming in black and white, or when altering colour of the effect may have deleterious effects on other elements of the scene (for example, rendering text difficult to read).

An example of a simulation for producing a lightning effect is now described in more detail. Lightning is simulated as a sequence of 'bursts' or groups of flashes. The number of flashes in each burst, the delay between bursts, the delay between each flash within the burst, and the amplitude of each flash are all set randomly within certain boundaries. The minimum 'on' time period of each flash can be set by the user to ensure full illumination of the camera frame. The lamp can also be set into a mode where a burst of flashes is triggered by the push of a button. In this way the effect can be triggered on demand by the user.

An example sequence of instructions for the simulation of lightning, with a series of bursts of flashes, is as follows:

At the end of a burst of flashes recalculate the parameters for the next burst:

- Reset the number of flashes in a burst to a random number between 2 and 10
- Reset the period to next burst to a random number between 2.5 and 5s.

Calculate parameters for each flash in a burst of flashes:

- Randomly modulate brightness of each flash slightly
- Reset the time to next flash to a random number between 8ms and 220ms

- Reset the 'on' flash duration to a random number between 8ms and 120ms
    - ensure a minimum off-period is maintained between flashes
- For the final flash set the duration to a random number between 10ms and 113ms

The lighting system, lighting effect simulator, lighting controller, lighting device, computing device, and/or computer program product may have one or more of the following features:

- built-in capability to generate a range of cinematic special effects by modulating the colour and brightness of the light output.
- the parameters of the effects can be controlled via a simple user interface on the lamp itself.
- the parameters of the effects can be controlled remotely via WiFi or DMX from a smart phone or tablet.
- networked with other lights to produce a synchronised large area special effect.
- minimum light pulse width can be adjusted to suit the shutter speed or frame rate of the user's camera to ensure even illumination across the frame.

Various other modifications will be apparent to those skilled in the art. It will be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention. For example, it should be appreciated that the effect simulator 100 or the computing device 130 may be separate from any light 102, and connectable to lights 102, by either a wired or wireless connection.

The lighting effect simulator 100 may be provided by way of a suitably adapted computing device 120 or 130 such as a PC, tablet or smart phone, with suitable

software for user input of simulation parameters. The computing device 120 or 130 may be a suitably adapted light controller device with suitable controls for user input of simulation parameters

Reference numerals appearing in the claims are by way of illustration only and shall have no limiting effect on the scope of the claims.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 12/18/2019
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, THAU N	

ART UNIT	PAPER NUMBER
2844	

NOTIFICATION DATE	DELIVERY MODE
12/18/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@ipatent.co.il

PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 15481460
Applicant : Gammons
Filing Date : 04/07/2017
Date Mailed : 12/18/2019

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Marsha Palmer-Lee/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 15481460

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 2 (SPEC 09/07/2018) of the specification there is a brief description of FIG. 8, but the drawings filed 07/01/2019 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[ ] The drawings filed include FIG. , but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] In the utility application, drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the several views as required by 37 CFR 1.74 and 37 CFR 1.77(b)(9).

[ ] The design application does not contain a description of the figure or figures of the drawing as required by 37 CFR 1.153(a) and 37 CFR 1.154(b)(4).

[ ] In the plant application, the specification does not contain a brief description of the drawing as required by 37 CFR 1.163(c)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] In the reissue application, FIG. , is labeled as "New" but is not described in the reissue specification's brief description of the drawings. Applicant must respond by amending the reissue specification's brief description of the drawings to add a brief description of the new drawing.

[ ] OTHER:

[ ] COMMENTS:

Electronic Acknowledgement Receipt

EFS ID:	38271944
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	13-JAN-2020
Filing Date:	07-APR-2017
Time Stamp:	04:51:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	69726ResponsetoNoticetofileCorrectedApplicationPapersof18Dec2019.pdf	20874 7a8658bd470f91532eecf24e296a30f84316c46d	no	1
Warnings:					

Information:					
2	Specification	69726AnnotatedSpecificationfiledinResponsetoNoticetoFileCorrectedApplicationPapersof18Dec2019.pdf	109677 2d1932e4c49e2099694c291550ccb9b1353e5724	no	21
Warnings:					
Information:					
3	Specification	69726SubstituteSpecificationfiledinResponsetoNoticetoFileCorrectedApplicationPapersof18Dec2019.pdf	109783 2572923c3f5eae4c0af6d344fb5976d0c5ea11e3	no	23
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	69726NoticetoFileCorrectedApplicationPapersAfterAllowancedated18Dec2019.pdf	285043 0e4f37b3e0272dd9aaee71acd09eafe22ae6ee1f	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	525377		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 12/18/2019
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

NOTIFICATION DATE	DELIVERY MODE
12/18/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@ipatent.co.il

PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 15481460
Applicant : Gammons
Filing Date : 04/07/2017
Date Mailed : 12/18/2019

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Marsha Palmer-Lee/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 15481460

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 2 (SPEC 09/07/2018) of the specification there is a brief description of FIG. 8, but the drawings filed 07/01/2019 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[ ] The drawings filed include FIG. , but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] In the utility application, drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the several views as required by 37 CFR 1.74 and 37 CFR 1.77(b)(9).

[ ] The design application does not contain a description of the figure or figures of the drawing as required by 37 CFR 1.153(a) and 37 CFR 1.154(b)(4).

[ ] In the plant application, the specification does not contain a brief description of the drawing as required by 37 CFR 1.163(c)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] In the reissue application, FIG. , is labeled as "New" but is not described in the reissue specification's brief description of the drawings. Applicant must respond by amending the reissue specification's brief description of the drawings to add a brief description of the new drawing.

[ ] OTHER:

[ ] COMMENTS:

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 10/24/2019

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 10/24/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	01/24/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 294 of 1082

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 10/24/2019

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

TITLE OF INVENTION: LIGHTING SYSTEM AND CONTROL THEREOF

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	01/24/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHAM, THAI N	2844	315-297000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 295 of 1082

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 10/24/2019

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, THAI N	
ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 10/24/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/481,460	Applicant(s) GAMMONS et al.	
	Examiner THAI N PHAM	Art Unit 2844	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE submitted on 10/07/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 75-88 and 90-94 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some *c) ☐ None of the:

   1. ☑ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 10/07/2019.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Thai Pham/
Primary Examiner, Art Unit 2844

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 298 of 1082

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

This Office Action is responsive to the applicant's amendment and request for continued examination (RCE) submitted on 10/07/2019. Claims 92 and 94 have been amended. Claims 1-74 and 89 are previously canceled. Thus, claims 75-88 and 90-94 are currently pending in the instant application.

Information Disclosure Statement

1. The information disclosure statements (IDSs) submitted on 10/07/2019 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements have been considered by the examiner.

Allowable Subject Matter

2. Claims 75-88 and 90-94 are allowed.

3. The following is an examiner's statement of reasons for allowance. The prior art fails to teach or fairly suggest combination of elements recited in independent claims 75, 86 and 94 including:

"an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter; and calculate a time varying lighting value based on said recalled simulation parameter; wherein the effect simulator is adapted to output said calculated time varying lighting value to the at least one lighting device thereby to simulate a lighting effect."

Comparing to the prior art of the record, because none of the prior art references of the record, either stand alone or in combination, has taught or suggest the above mentioned features in combination with other limitations recited in the claims above. Therefore, the claims seemed patentable over the prior of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THAI N PHAM whose telephone number is (571)270-5518. The examiner can normally be reached on M-F 9:00 am-5:00 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DOUGLAS OWENS can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thai Pham/
Primary Examiner, Art Unit 2844
10/12/2019

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

CPC						
Symbol					**Type**	**Version**
F21V	/	23	/	003	F	2013-01-01
H05B	/	37	/	029	I	2013-01-01
H05B	/	37	/	0254	I	2013-01-01
H05B	/	37	/	0272	I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	12 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20191012

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 302 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F21V	/	23	/	00
H05B	/	37	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	12 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20191012

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 303 of 1082

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	**Art Unit**
	THAI N PHAM	2844

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	13	-	25	-	37	-	49	-	61	-	73	11	85
-	2	-	14	-	26	-	38	-	50	-	62	-	74	12	86
-	3	-	15	-	27	-	39	-	51	-	63	1	75	13	87
-	4	-	16	-	28	-	40	-	52	-	64	2	76	14	88
-	5	-	17	-	29	-	41	-	53	-	65	3	77	-	89
-	6	-	18	-	30	-	42	-	54	-	66	4	78	15	90
-	7	-	19	-	31	-	43	-	55	-	67	5	79	16	91
-	8	-	20	-	32	-	44	-	56	-	68	6	80	17	92
-	9	-	21	-	33	-	45	-	57	-	69	7	81	18	93
-	10	-	22	-	34	-	46	-	58	-	70	8	82	19	94
-	11	-	23	-	35	-	47	-	59	-	71	9	83		
-	12	-	24	-	36	-	48	-	60	-	72	10	84		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	19	
/Thai Pham/ Primary Examiner, Art Unit 2844	12 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20191012

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 304 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP
Updated East search	07/08/2019	TP
Updated East search	10/12/2019	TP
Did the interference search	10/12/2019	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 305 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H05B	37/02, 37/0272, 37/029, 37/0281, 33/08, 33/0842	10/12/2019	TP
F21V	23/00, 23/003	10/12/2019	TP

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 306 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019					
	1	-	-	-	-					
	2	-	-	-	-					
	3	-	-	-	-					
	4	-	-	-	-					
	5	-	-	-	-					
	6	-	-	-	-					
	7	-	-	-	-					
	8	-	-	-	-					
	9	-	-	-	-					
	10	-	-	-	-					
	11	-	-	-	-					
	12	-	-	-	-					
	13	-	-	-	-					
	14	-	-	-	-					
	15	-	-	-	-					
	16	-	-	-	-					
	17	-	-	-	-					
	18	-	-	-	-					
	19	-	-	-	-					
	20	-	-	-	-					
	21	-	-	-	-					
	22	-	-	-	-					
	23	-	-	-	-					
	24	-	-	-	-					
	25	-	-	-	-					
	26	-	-	-	-					
	27	-	-	-	-					
	28	-	-	-	-					
	29	-	-	-	-					
	30	-	-	-	-					
	31	-	-	-	-					
	32	-	-	-	-					
	33	-	-	-	-					
	34	-	-	-	-					
	35	-	-	-	-					
	36	-	-	-	-					
	37	-	-	-	-					
	38	-	-	-	-					
	39	-	-	-	-					
	40	-	-	-	-					
	41	-	-	-	-					
	42	-	-	-	-					

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 307 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019	10/12/2019					
	43	-	-	-	-					
	44	-	-	-	-					
	45	-	-	-	-					
	46	-	-	-	-					
	47	-	-	-	-					
	48	-	-	-	-					
	49	-	-	-	-					
	50	-	-	-	-					
	51	-	-	-	-					
	52	-	-	-	-					
	53	-	-	-	-					
	54	-	-	-	-					
	55	✓	-	-	-					
	56	✓	-	-	-					
	57	✓	-	-	-					
	58	✓	-	-	-					
	59	✓	-	-	-					
	60	✓	-	-	-					
	61	✓	-	-	-					
	62	✓	-	-	-					
	63	✓	-	-	-					
	64	✓	-	-	-					
	65	✓	-	-	-					
	66	✓	-	-	-					
	67	✓	-	-	-					
	68	✓	-	-	-					
	69	✓	-	-	-					
	70	✓	-	-	-					
	71	✓	-	-	-					
	72	✓	-	-	-					
	73	✓	-	-	-					
	74	✓	-	-	-					
	75		✓	=	=					
	76		✓	=	=					
	77		✓	=	=					
	78		✓	=	=					
	79		✓	=	=					
	80		✓	=	=					
	81		✓	=	=					
	82		✓	=	=					
	83		✓	=	=					
	84		✓	=	=					
	85		✓	=	=					
	86		✓	=	=					
	87		✓	=	=					
	88		✓	=	=					
	89		✓	-	-					
	90		✓	=	=					
	91		✓	=	=					
	92		✓	O	=					
	93		✓	=	=					
	94		✓	O	=					

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 308 of 1082

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	(("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48
S11	48723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23

S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S17	48822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59
S22	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" |	US-PGPUB; USPAT;	OR	ON	2018/12/21 19:00

		"20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S23	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:41
S24	26	(US-0094798-$ | US-0112862-$ | US-0135842-$ | US-0139130-$ | US-0257007-$ | US-20040257007-$ | US-20140139130-$ | US-20180094798-$ | US-20180112862-$ | US-20180135842-$ | US-2120512-$ | US-3002995-$ | US-7777427-$ | US-8253666-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:10
S26	59607	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S27	203	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:09
S29	1093	light$4 with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:49

S30	137	S26 and S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:50
S31	12	("20070159347" | "20080129226" | "5924784" | "7038399").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:52
S32	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 10:56
S33	6	("20030176205" | "20040110540" | "20070146332" | "20070173291" | "7120471" | "7266397").PN. OR ("8320887").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/10/15 10:59
S34	260	light$4 same effect same control$4 same memory same user same (calculat$4 or comput$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:00
S35	4	S26 and S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:01
S36	92	light$4 with control$4 with memory with stor$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:02
S37	3	S26 and S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:04
S38	74	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/10/15 11:06
S39	33	S26 and S38	US-PGPUB;	OR	ON	2019/10/15

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			11:07

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S40	18813	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT	OR	ON	2019/10/15 11:09
S41	9	light$4 with effect with control$4 with memory with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:10
S42	41	light$4 with effect with control$4 with user with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:11
S43	16	S40 and S42	US-PGPUB; USPAT	OR	ON	2019/10/15 11:12
S44	61	light$4 same effect same control$4 same (user near5 input) same (calculat$4 or comput$4) same (memory or stor$4) same (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S45	1	S40 and S44	US-PGPUB; USPAT	OR	ON	2019/10/15 11:15
S46	12	light$4 with effect with control$4 with (user near5 input) with (calculat$4 or comput$4) with (vary$4 or adjust$4 or tun$4)	US-PGPUB; USPAT	OR	ON	2019/10/15 11:17
S47	117	(light$4 and effect and control$4 and memory and stor$4 and user and input and interface and (calculat$4 or comput$4) and (vary$4 or adjust$4 or tun$4)).clm.	US-PGPUB; USPAT	OR	ON	2019/10/15 11:19

10/ 15/ 2019 11:40:26 AM
C:\ Users\ tpham3\ Documents\ EAST\ Workspaces\ 15481460.wsp

Bibliographic Data

Application No: 15/481,460

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /Thai Pham/ Examiner's Signature [ ] Initials

Title: LIGHTING SYSTEM AND CONTROL THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/07/2017	315	2844	69726
RULE			

APPLICANTS

Rotolight Limited, London, UNITED KINGDOM

INVENTORS

Roderick Allen GAMMONS Staines Upon Thames, UNITED KINGDOM

Andrew FRANCIS Witham, UNITED KINGDOM

Roderick Aaron GAMMONS Winkfield, UNITED KINGDOM

Stefan Lange Shepperton, UNITED KINGDOM

CONTINUING DATA

This application has PRO of 62319809 04/08/2016

FOREIGN APPLICATIONS

UNITED KINGDOM 1606907.2 04/20/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED KINGDOM

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215
UNITED STATES

FILING FEE RECEIVED

$1,100

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number / Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents — Country Code [3] Number [4] Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature	/Thai Pham/	Date Considered	10/12/2019

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Patents Act 1977: Examination Report Under Sections 18(3) Dated 31 May 2019 From the Intellectual Property Office of the United Kingdom of Great Britain Re. Application No. GB1802585.8. (4 Pages)	

Examiner Signature	/Thai Pham/	Date Considered	10/12/2019

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

	Complete if Known
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Sheet 1 of 2	Attorney Docket Number 69726

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3]-Number [4]-Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Patents Act 1977: Examination Report Under Sections 18(3) Dated 31 May 2019 From the Intellectual Property Office of the United Kingdom of Great Britain Re. Application No. GB1802585.8. (4 Pages)	

Examiner Signature		Date Considered	

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	37377112
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan/Darrell Hollis
Filer Authorized By:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Receipt Date:	07-OCT-2019
Filing Date:	07-APR-2017
Time Stamp:	09:10:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	_USPTOltr.pdf	23939 33dcaa3a030c8b1199a4581326b88166f82f7973	no	3
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	_form1449.pdf	327048 927c656bd057a23703866ca2c8e847608f317c2c	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	1-326655.pdf	376209 aaf4325e4cdd2f1566acf0d22368045efc28847a	no	4
Warnings:					
Information:					
		Total Files Size (in bytes):	727196		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§		
	§		
GAMMONS Roderick Allen et al	§		
	§	Confirmation No.:	5642
Serial No.: 15/481,460	§		
	§		
Filed: April 07, 2017	§	Group Art Unit:	2844
	§		
For: LIGHTING SYSTEM AND CONTROL THEREOF [CineSFX]	§		
	§	Attorney Docket:	69726
Examiner: PHAM Thai N.	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a PTO Form 1449 which lists citations which may be material to the patentability and examination of the above identified application. Also enclosed are copies of the references cited, other than U.S. Patents and U.S. patent applications. These are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56, 37 CFR 1.97 and 37 CFR 1.98. The Examiner is requested to make these citations of official record in this application.

The undersigned states:

A. NO CERTIFICATION OR FEE DUE

☒ This Information disclosure Statement is being filed within three months of filing a national application or entry of a national phase of an international application; or before the mailing date of a first Office action on the merits of the above-identified application. Accordingly, no fee or Certification is believed due. However, if a fee is due, authorization to deduct such fee from the Deposit Account 501407 of the undersigned is hereby provided.

B. CERTIFICATION

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

C. FEE

☐

☒ No Fee is Due.

This Information Disclosure Statement under 37 CFR 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of the citations listed constitutes prior art as defined by 35 U.S.C. 102.

It is respectfully requested that the Examiner consider the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and sign the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application. Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information.

FOR PATENT TERM ADJUSTMENT CALCULATION PURPOSES ONLY:

Unless indicated otherwise, to the best of our knowledge and procedures, each item of information contained in the information disclosure statement was first known no more than thirty days prior to the filing of the information disclosure statement, either by the inventor named in the application, Attorney or agent who prepares or prosecutes the application, and every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application.

Respectfully submitted,

/ Martin D. Moynihan /

Martin D. Moynihan
Registration No. 40338
Telephone: (703)859-9634

Date: 04 October 2019

PTO/SB/30 (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL

Subsection (b) of 35 U.S.C. § 132, effective on May 29, 2000, provides for continued examination of an utility or plant application filed on or after June 8, 1995. See The American Inventors Protection Act of 1999 (AIPA).

Application Number	**15/481,460**
Filing Date	**April 7, 2017**
Examiner Name	**Thai N. PHAM**
First Named Inventor	**Roderick Allen GAMMONS**
Group Art Unit	**2844**
Confirmation No.:	**5642**
Attorney Docket Number	**69726**

This is a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application.

NOTE: *37 C.F.R. § 1.114 is effective on May 29, 2000. If the above-identified application was filed prior to May 29, 2000, applicant may wish to consider filing a continued prosecution application (CPA) under 37 C.F.R. § 1.53 (d) (PTO/SB/29) instead of a RCE to be eligible for the patent term adjustment provisions of the AIPA.* See *Changes to Application Examination and Provisional Application Practice*, Final Rule, 65 *Fed. Reg.* 50092 (Aug. 16, 2000); Interim Rule, 65 *Fed. Reg.* 14865 (Mar. 20, 2000), 1233 *Off. Gaz. Pat. Office* 47 (Apr. 11, 2000), which established RCE practice.

1. **Submission required under 37 C.F.R. § 1.114**
   - a. ☐ Previously submitted
     - i. ☐ Consider the amendment(s)/reply under 37 C.F.R. § 1.116 previously filed on _____ (Any unentered amendment(s) referred to above will be entered).
     - ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
   - b. ☒ **Enclosed**
     - i. ☐ Amendment/Reply
     - ii. ☐ Affidavit(s)/Declaration(s)
     - **iii. ☒ Information Disclosure Statement (IDS)**
2. **Miscellaneous**
   - a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of ____ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. § 1.17(i) **required**)
   - b. ☐ Other _____
3. **Fees** The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.
4. ☒ **Provisional extension of time if needed**. Applicants authorize any charge of additional fees (except issue fee) that may be required in connection with this application to Deposit Account No. 50-1407.

☒ **Applicant is entitled to Small Entity Status under 37 CFR 1.9 and 37 CFR 1.27**

For:	*Claims after Amendment*	*Highest Claims Previously Paid*	*SMALL ENTITY* RATE	FEE	OTHER THAN A SMALL ENTITY RATE	FEE
Request for Continued Examination (RCE)			**1**	**$ 950**		**$**
Multiple Dependent Claims			**0 x $410**	**$ 0**		**$**
Total Claims*	**19**	**20**	**0 x $50**	**$ 0**		**$**
Independent Claims*	**3**	**3**	**0 x $230**	**$ 0**		**$**
* **(If the difference in Column 1 is less than "0", enter "0" in Column 2)**			***TOTAL***	**$950**	***TOTAL***	***$***

☒ **The Commissioner is hereby authorized to charge $950.00- filing fees to Deposit Account No. 50-1407. In the event additional fees are required, please charge these additional fees to Deposit Account No. 50-1407. In the event of overpayment, please credit Deposit Account No. 50-1407.**

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)	Martin D. Moynihan	*Registration No. (Attorney/Agent*	40338
Signature	**/Martin D. Moynihan/**	*Date*	**October 7, 2019**

Electronic Patent Application Fee Transmittal				
Application Number:	15481460			
Filing Date:	07-Apr-2017			
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF			
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS			
Filer:	Martin Dennis Moynihan			
Attorney Docket Number:	69726			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt	
EFS ID:	37376761
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	07-OCT-2019
Filing Date:	07-APR-2017
Time Stamp:	07:17:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$950
RAM confirmation Number	E201907818273709
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	69726RCE.pdf	63009 293b1a244cf7fa41e8cbf3d2b6ee58950f1bc232	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30302 a0e0aebe8c135db42692acb909000764dcf61aaa	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	93311		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
		§		
Examiner:	Thai N. PHAM	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO EX PARTE QUAYLE

Sir:

This is in response to the United States Patent and Trademark Ex Parte Quayle Office Action mailed July 12, 2019, which response is being made on or before September 12, 2019, and for which no extension of time fees are due.

Applicant submits this response for entry into the record, in which:

Amendments to the Claims begin on page 2.

Remarks begin on page 6.

Please amend the above-identified application as follows:

In the Claims:

1-74. (Cancelled)

75. (Previously Presented) A method for controlling a lighting device to produce a range of different user customisable lighting effects, the method comprising:

receiving user input of at least one user input simulation parameter to customise a lighting effect;

storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;

recalling from said memory said at least one stored user input simulation parameter;

calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and

outputting to said lighting device said time varying lighting value thereby to simulate the lighting effect.

76. (Previously Presented) The method according to Claim 75, wherein said user customisable simulation parameter is stored locally.

77. (Previously Presented) The method according to Claim 75, wherein the simulation parameter comprises a colour or colour temperature.

78. (Previously Presented) The method according to Claim 75, wherein the simulation parameter is related to at least one of: an effect frequency; an effect speed; a colour; a colour temperature; a trigger; a rate of increase of brightness; a rate of decrease of brightness; a rate of change of colour; a brightness; a local maximal (peak) brightness; a local minimal brightness; a brightness fluctuation period; and a colour fluctuation time period.

79. (Previously Presented) The method according to Claim 75, wherein the lighting effect comprises a short time-period (e.g. stroboscopic) lighting effect with a user adjustable minimum pulse width.

80. (Previously Presented) The method according to Claim 75, wherein the user customisable simulation parameter comprises a parameter indicative of a group consisting of: a camera recording frequency; a camera shutter speed; and a camera frame rate.

81. (Previously Presented) The method according to Claim 75, wherein the lighting effect is designed to mimic at least one of: fire; lightning; police car light; television; a neon flickering sign; a candle; muzzle (gunshot); welding; spark/short circuit; a scan (e.g. fingerprint scanner); paparazzi flashes; fireworks; flashes (strobe); a propeller; a (nuclear) explosion; and a wormhole.

82. (Previously Presented) The method according to Claim 75, wherein the lighting value comprises brightness and/or colour data.

83. (Previously Presented) The method according to Claim 75, further comprising converting at least one of brightness and colour data into a lighting signal and outputting the lighting signal to the lighting device.

84. (Previously Presented) The method according to Claim 75, wherein the controlling is for a lighting system for videography, broadcast, cinematography, studio filming and/or location filming.

85. (Previously Presented) The method according to Claim 75, further comprising controlling at least one further lighting device.

86. (Previously Presented) A system adapted to control at least one lighting device to produce a range of different user customisable lighting effects, the system comprising:

an input interface adapted to receive user input of at least one user input simulation parameter to customise a lighting effect;
a memory adapted to store said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; and
an effect simulator adapted to:
recall from said memory said at least one stored user input simulation parameter; and
calculate a time varying lighting value based on said recalled simulation parameter;
wherein the effect simulator is adapted to output said calculated time varying lighting value to the at least one lighting device thereby to simulate a lighting effect.

87. (Previously Presented) The system according to Claim 86, wherein the system is adapted to control at least one further lighting device.

88. (Previously Presented) The system according to Claim 86, further comprising an input interface and wherein the input interface comprises at least one of: a wireless communication interface; a dial; a slider; a display and buttons.

89. (Cancelled)

90. (Previously Presented) The system according to Claim 86, wherein said at least one lighting device is integrated in a combined unit.

91. (Previously Presented) The system according to Claim 86, wherein the at least one lighting device comprises a lighting device for videography, broadcast, cinematography, studio filming and/or location filming.

92. (Currently Amended) ~~A~~ The system according to Claim 86, wherein the at least one lighting device comprises at least one light emitting diode.

93. (Previously Presented) A lighting device according to Claim 92, wherein the at least one lighting device is used for videography, broadcast, cinematography, studio filming and/or location filming.

94. (Currently Amended) A computer program product comprising software code for controlling a lighting device to produce a range of different user customisable lighting effects, the computer program product is adapted to perform, when executed, the steps of:

receiving user input of at least one user input simulation parameter to customise a lighting effect;

storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;

recalling from said memory said at least one stored user input simulation parameter;

calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and

outputting to said lighting device said time varying lighting value thereby to simulate a lighting effect.

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 75-88 and 90-94 are in this Application.

Objections

In claim 92, it is suggested that the phrase recites "A system according to claim 86" should be changed to --The system according to claim 86-- to avoid antecedence basis. Applicant amended the claims accordingly.

In claim 94, it is suggested to clarify the limitation "A computer program product comprising software code for controlling a lighting device to produce a range of different user customisable lighting effects the computer program product adapted to perform, when executed, the steps of". Applicant amended the claims accordingly.

Conclusion

No Disclaimers or Disavowals

Although the present response may include amendments to the application or claims, or characterizations of claim scope or referenced art, Applicants do not concede that previously pending claims in this application are not patentable over the cited references. Rather, any amendments or characterizations are being made to expedite the issuance. Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that relate to subject matter supported by the instant application, including subject matter specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this application, or any parent, child or related prosecution history should not infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the instant application.

In view of the above amendments and remarks it is respectfully submitted that the claims are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

While the above amendments and/or remarks are believed to be sufficient to overcome the Examiner's rejections, any omissions as to assertions by the Examiner or certain requirements that may be applicable to such rejections (e.g., assertions regarding dependent claims, whether a reference constitutes prior art, whether references are legally combinable for obviousness purposes) is not an admission that such assertions are accurate or such requirements have been met. Applicant reserves the right to analyze and dispute such positions in the future.

Should the Examiner have any questions or comments as to the form, content, or entry of this paper, the Examiner is requested to contact the undersigned at the telephone number below prior to mailing the next Official Action. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Any fees associated with this paper, for its entry into the record, may be charged to Deposit Account No. 50-1407.

During the pendency of this application, the Commissioner for Patents is hereby authorized to charge payment of any filing fees for presentation of extra claims under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17, or credit any overpayment, to Deposit Account No. 50-1407.

The Commissioner for Patents is hereby authorized to treat any concurrent or future reply, requiring a petition for extension of time under 37 CFR § 1.136 for its timely submission, as incorporating a petition for extension of time for the appropriate length of time if not submitted with the reply.

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR § 1.33 and 37 CFR § 1.34 concerning any subject matter of this application by video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications may be made of record in the application file.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: September 3, 2019

Electronic Acknowledgement Receipt	
EFS ID:	37042218
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	03-SEP-2019
Filing Date:	07-APR-2017
Time Stamp:	05:37:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		69726ResponsetoExParteQuayleOfficeActionof12Jul2019.pdf	43309 29f7b9c1dd84934bb1ab770cc46b92d43cdc8c54	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response after Ex Parte Quayle Action	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	8
Warnings:			
Information:			
	Total Files Size (in bytes):	43309	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 07/12/2019

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
PHAM, THAI N

ART UNIT	PAPER NUMBER
2844	

NOTIFICATION DATE	DELIVERY MODE
07/12/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@ipatent.co.il

PTOL-90A (Rev. 04/07)

Office Action Summary	**Application No.** 15/481,460	**Applicant(s)** GAMMONS et al.	
	Examiner THAI N PHAM	**Art Unit** 2844	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 07/01/2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☑ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 75-88 and 90-94 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☑ Claim(s) 75-88,90-91 and 93 is/are allowed.

7) ☐ Claim(s) _____ is/are rejected.

8) ☑ Claim(s) 92 and 94 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 07/01/2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

1. This application is in condition for allowance except for the following formal matters:

Claim Objections

2. Claim 92 and 94 are objected to because of the following informalities:

In claim 92, it is suggest that the phrase recites "**A** system according to claim 86" should be changed to --**The** system according to claim 86-- to avoid antecedence basis.

In claim 94, it is suggested that the limitation recites "A computer program **product** comprising software code for controlling a lighting device to produce a range of different user customisable lighting effects the computer program **produc**t adapted to perform, when executed, the steps of" should be changed to --A computer program comprising software code for controlling a lighting device to produce a range of different user customisable lighting effects, the computer program adapted to perform, when executed, the steps of-- to make it clearer.

Appropriate correction is required.

Conclusion

3. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THAI N PHAM whose telephone number is (571)270-5518. The examiner can normally be reached on M-F 9:00 am-5:00 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DOUGLAS OWENS can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thai Pham/
Primary Examiner, Art Unit 2844
07/08/2019

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019						
	1	-	-	-						
	2	-	-	-						
	3	-	-	-						
	4	-	-	-						
	5	-	-	-						
	6	-	-	-						
	7	-	-	-						
	8	-	-	-						
	9	-	-	-						
	10	-	-	-						
	11	-	-	-						
	12	-	-	-						
	13	-	-	-						
	14	-	-	-						
	15	-	-	-						
	16	-	-	-						
	17	-	-	-						
	18	-	-	-						
	19	-	-	-						
	20	-	-	-						
	21	-	-	-						
	22	-	-	-						
	23	-	-	-						
	24	-	-	-						
	25	-	-	-						
	26	-	-	-						
	27	-	-	-						
	28	-	-	-						
	29	-	-	-						
	30	-	-	-						
	31	-	-	-						
	32	-	-	-						
	33	-	-	-						
	34	-	-	-						
	35	-	-	-						
	36	-	-	-						
	37	-	-	-						
	38	-	-	-						
	39	-	-	-						
	40	-	-	-						
	41	-	-	-						
	42	-	-	-						

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 344 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018	07/08/2019						
	43	-	-	-						
	44	-	-	-						
	45	-	-	-						
	46	-	-	-						
	47	-	-	-						
	48	-	-	-						
	49	-	-	-						
	50	-	-	-						
	51	-	-	-						
	52	-	-	-						
	53	-	-	-						
	54	-	-	-						
	55	✓	-	-						
	56	✓	-	-						
	57	✓	-	-						
	58	✓	-	-						
	59	✓	-	-						
	60	✓	-	-						
	61	✓	-	-						
	62	✓	-	-						
	63	✓	-	-						
	64	✓	-	-						
	65	✓	-	-						
	66	✓	-	-						
	67	✓	-	-						
	68	✓	-	-						
	69	✓	-	-						
	70	✓	-	-						
	71	✓	-	-						
	72	✓	-	-						
	73	✓	-	-						
	74	✓	-	-						
	75		✓	=						
	76		✓	=						
	77		✓	=						
	78		✓	=						
	79		✓	=						
	80		✓	=						
	81		✓	=						
	82		✓	=						
	83		✓	=						
	84		✓	=						
	85		✓	=						
	86		✓	=						
	87		✓	=						
	88		✓	=						
	89		✓	-						
	90		✓	=						
	91		✓	=						
	92		✓	O						
	93		✓	=						
	94		✓	O						

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 345 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP
Updated East search	07/08/2019	TP

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 346 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 347 of 1082

Bibliographic Data

Application No: 15/481,460

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /Thai Pham/ Examiner's Signature [ ] Initials

Title: LIGHTING SYSTEM AND CONTROL THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/07/2017	315	2844	69726
RULE			

APPLICANTS

Rotolight Limited, London, UNITED KINGDOM

INVENTORS

Roderick Allen GAMMONS Staines Upon Thames, UNITED KINGDOM

Andrew FRANCIS Witham, UNITED KINGDOM

Roderick Aaron GAMMONS Winkfield, UNITED KINGDOM

Stefan Lange Shepperton, UNITED KINGDOM

CONTINUING DATA

This application has PRO of 62319809 04/08/2016

FOREIGN APPLICATIONS

UNITED KINGDOM 1606907.2 04/20/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED KINGDOM

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215
UNITED STATES

FILING FEE RECEIVED

$1,100

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	(("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48
S11	48723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23

S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S17	48822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59
S22	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" |	US-PGPUB; USPAT;	OR	ON	2018/12/21 19:00

		"20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S23	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:41
S24	26	(US-0094798-$ | US-0112862-$ | US-0135842-$ | US-0139130-$ | US-0257007-$ | US-20040257007-$ | US-20140139130-$ | US-20180094798-$ | US-20180112862-$ | US-20180135842-$ | US-2120512-$ | US-3002995-$ | US-7777427-$ | US-8253666-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:10
S25	26	(US-0129226-$ | US-0159347-$ | US-20070159347-$ | US-20080129226-$ | US-2209229-$ | US-2383608-$ | US-2424525-$ | US-2482562-$ | US-5307295-$ | US-5921659-$ | US-5924784-$ | US-7038399-$ | US-7353071-$).DID.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2019/07/08 14:11

7/8/2019 2:35:15 PM
C:\Users\tpham3\Documents\EAST\Workspaces\15481460.wsp

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/481,460	Filing Date 04/07/2017	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	07/01/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0		x $0 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $0 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/RENEE D HAWKINS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/25 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION**
Application Number	15481460
Filing Date	07-Apr-2017
First Named Inventor	Roderick Allen GAMMONS
Attorney Docket Number	69726
Title of Invention	LIGHTING SYSTEM AND CONTROL THEREOF

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Rotolight Limited	100%

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

15820469 filed on 11/22/2017

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ◉ Small Entity ○ Micro Entity ○ Regular Undiscounted I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 40338 ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this request	
Signature	/Martin D. Moynihan/
Name	Martin D. Moynihan

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15481460
Filing Date:	07-Apr-2017
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Filer:	Martin Dennis Moynihan
Attorney Docket Number:	69726

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15481460

Filing Date: 07-Apr-2017

Applicant/Patent under Reexamination: GAMMONS

Electronic Terminal Disclaimer filed on July 1, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	36456553
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	01-JUL-2019
Filing Date:	07-APR-2017
Time Stamp:	05:33:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$160
RAM confirmation Number	070119INTEFSW00010100501407
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33898 4f3083564414dced1b39aa1f6327a6ee1a917511	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30078 cf0a96b19caaae1c82409fc87e661508f8631cf9	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	63976		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 15481460 Document Date: 07/01/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: March 1, 2019

PTO/SB/30 (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL

Subsection (b) of 35 U.S.C. § 132, effective on May 29, 2000, provides for continued examination of an utility or plant application filed on or after June 8, 1995. See The American Inventors Protection Act of 1999 (AIPA).

Application Number	**15/481,460**
Filing Date	**April 7, 2017**
Examiner Name	**Thai N. PHAM**
First Named Inventor	**Roderick Allen GAMMONS**
Group Art Unit	**2844**
Confirmation No.:	**5642**
Attorney Docket Number	**69726**

This is a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application.

NOTE: *37 C.F.R. § 1.114 is effective on May 29, 2000. If the above-identified application was filed prior to May 29, 2000, applicant may wish to consider filing a continued prosecution application (CPA) under 37 C.F.R. § 1.53 (d) (PTO/SB/29) instead of a RCE to be eligible for the patent term adjustment provisions of the AIPA. See Changes to Application Examination and Provisional Application Practice*, Final Rule, 65 *Fed. Reg.* 50092 (Aug. 16, 2000); Interim Rule, 65 *Fed. Reg.* 14865 (Mar. 20, 2000), 1233 *Off. Gaz. Pat. Office* 47 (Apr. 11, 2000), which established RCE practice.

1. **Submission required under 37 C.F.R. § 1.114**
   - a. ☐ Previously submitted
     - i. ☐ Consider the amendment(s)/reply under 37 C.F.R. § 1.116 previously filed on _____
       (Any unentered amendment(s) referred to above will be entered).
     - ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
   - b. ☒ **Enclosed**
     - i. ☒ **Amendment/Reply**
     - ii. ☐ Affidavit(s)/Declaration(s)
     - iii. ☐ Information Disclosure Statement (IDS)
     - iv. ☒ **Other three (3) Month Extension fee**
     - v. ☐ Other

2. **Miscellaneous**
   - a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. § 1.17(i) **required**)
   - b. ☐ Other _____

3. **Fees** The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.

4. ☒ **Provisional extension of time if needed**. Applicants authorize any charge of additional fees (except issue fee) that may be required in connection with this application to Deposit Account No. 50-1407.

☒ **Applicant is entitled to Small Entity Status under 37 CFR 1.9 and 37 CFR 1.27**

For:	*Claims after Amendment*	*Highest Claims Previously Paid*	*SMALL ENTITY* RATE	FEE	OTHER THAN A SMALL ENTITY RATE	FEE
Request for Continued Examination (RCE)			1	$ 650		$
Multiple Dependent Claims			0 x $410	$ 0		$
Total Claims*	19	20	0 x $50	$ 0		$
Independent Claims*	3	3	0 x $230	$ 0		$
* **(If the difference in Column 1 is less than "0", enter "0" in Column 2)**			*TOTAL*	$650	*TOTAL*	$

☒ **The Commissioner is hereby authorized to charge $650.- filing fees to Deposit Account No. 50-1407. In the event additional fees are required, please charge these additional fees to Deposit Account No. 50-1407. In the event of overpayment, please credit Deposit Account No. 50-1407.**

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)	Martin D. Moynihan	*Registration No. (Attorney/Agent*	40338
Signature	**/Martin D. Moynihan/**	*Date*	**July 1, 2019**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:			
	Roderick Allen GAMMONS et al.		
		Confirmation No.:	5642
Serial No.:	15/481,460		
Filed:	April 7, 2017	Group Art Unit:	2844
For:	LIGHTING SYSTEM AND CONTROL THEREOF		
		Attorney Docket:	**69726**
Examiner:	Thai N. PHAM		

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO FINAL FILED IN CONJUNCTION WITH RCE

Sir:

This is in response to the United States Patent and Trademark Office Final Action mailed December 31, 2018, which response is being made on July 1, 2019 (June 30, 2019 being Sunday), and for which a three month extension of time fee is due and enclosed herewith.

A Request for Continued Examination (RCE) is also enclosed herewith.

Applicant submits this response for entry into the record, in which:

Amendments to the Specification begin on page 2.

Amendments to the Claims begin on page 4.

Amendments to the Drawings begin on page 8.

Remarks begin on page 9.

Please amend the above-identified application as follows:

In the Specification:

Please amend the Paragraph beginning at Page 11, line 1, as follows:

Figure 2 schematically shows an example where a lighting effect simulator 100 and the light 102 are integrated in a single studio lamp device 120. In one example, the light 102 is an array of LEDs, preferably of differing colours. This arrangement does not require the DMX distribution hub 302, power elements 304, 306 as described above, and is more flexible in producing effects as will be described in more detail below. A microcontroller or other computing unit is integrated in the lamp device 120 for performing calculations. ~~An input interface 105 including a~~ A control panel is provided at a back panel of the lamp device 120. The control panel can include for example buttons, rotary knobs, sliders, and/or a display/input panel for user input of parameters for simulating an effect. ~~The user input simulation parameters are optionally stored in memory 220.~~ In a variant a simple digital interface is provided on the light itself for user input of simulation parameters to control the lighting effect. In another variant the lamp device 120 is adapted for communication with a wireless user device and receives user-selectable simulation parameters to control the lighting effect from the user device. The user device may for example be a tablet or smart phone with suitable hardware / software (e.g. an app) for receiving user input of simulation parameters and transmitting that data to the lamp device 120. The system of Figure 2 is simpler to set up and less expensive than that of Figure 1 as there are fewer pieces of hardware. Furthermore the energy inefficiency of 'hot light' systems (i.e. a 1K hot light consumes 1000 watt/hour, vs 38 watt per hour of current generation LED system), Systems such as that described in Figure 1 using a flicker box and typically 'hot lights' also suffer from the significant disadvantage that a hot light is a fixed colour of light, either daylight 5600K or most commonly tungsten 3200K. When recreating an effect such a lightning this effect would appear at the blue end of the colour spectrum i.e. 7000K+ so utilising a 3200K light for this would require an operator to climb up a ladder to apply one or more CTB (Colour temperature blue) filter(s) to the light in order to achieve the desired colour temperature.

Please amend the Paragraph beginning at Page 17, line 9, as follows:

It should be appreciated that due to the nature of the light 102, the effects may be customised by a user. ~~As shown in Figure 8, a user may input simulation parameters 802 in order to customise a lighting effect,~~ for example, the frequency/speed, peak/minimum brightness or colour / colour temperature may be dynamically changed, and/or made to vary over time in a customised manner. Such user input simulation parameters may be stored ~~804~~ in memory 220 and recalled ~~806~~ from the memory 220 at a later time. ~~A time varying lighting value is calculated 808 based on the recalled simulation parameter and output 810 to the light 102.~~ The effects may be triggered on cue (for example from a director) by sending a signal over a wired remote trigger or wireless device.

In the Claims:

1-74. (Cancelled).

75. (Previously Presented) A method for controlling a lighting device to produce a range of different user customisable lighting effects, the method comprising:

receiving user input of at least one user input simulation parameter to customise a lighting effect;

storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;

recalling from said memory said at least one stored user input simulation parameter;

calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and

outputting to said lighting device said time varying lighting value thereby to simulate the lighting effect.

76. (Previously Presented) The method according to Claim 75, wherein said user customisable simulation parameter is stored locally.

77. (Previously Presented) The method according to Claim 75, wherein the simulation parameter comprises a colour or colour temperature.

78. (Previously Presented) The method according to Claim 75, wherein the simulation parameter is related to at least one of: an effect frequency; an effect speed; a colour; a colour temperature; a trigger; a rate of increase of brightness; a rate of decrease of brightness; a rate of change of colour; a brightness; a local maximal (peak) brightness; a local minimal brightness; a brightness fluctuation period; and a colour fluctuation time period.

79. (Previously Presented) The method according to Claim 75, wherein the lighting effect comprises a short time-period (e.g. stroboscopic) lighting effect with a user adjustable minimum pulse width.

80. (Previously Presented) The method according to Claim 75, wherein the user customisable simulation parameter comprises a parameter indicative of a group consisting of: a camera recording frequency; a camera shutter speed; and a camera frame rate.

81. (Previously Presented) The method according to Claim 75, wherein the lighting effect is designed to mimic at least one of: fire; lightning; police car light; television; a neon flickering sign; a candle; muzzle (gunshot); welding; spark/short circuit; a scan (e.g. fingerprint scanner); paparazzi flashes; fireworks; flashes (strobe); a propeller; a (nuclear) explosion; and a wormhole.

82. (Previously Presented) The method according to Claim 75, wherein the lighting value comprises brightness and/or colour data.

83. (Previously Presented) The method according to Claim 75, further comprising converting at least one of brightness and colour data into a lighting signal and outputting the lighting signal to the lighting device.

84. (Previously Presented) The method according to Claim 75, wherein the controlling is for a lighting system for videography, broadcast, cinematography, studio filming and/or location filming.

85. (Previously Presented) The method according to Claim 75, further comprising controlling at least one further lighting device.

86. (Currently Amended) A ~~controller~~ system adapted to control ~~a~~ at least one lighting device to produce a range of different user customisable lighting effects, the system ~~controller~~ comprising:

an input interface adapted to receive user input of at least one user input simulation parameter to customise a lighting effect;

a memory adapted to store said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; and

an effect simulator adapted to:

recall from said memory said at least one stored user input simulation parameter; and

calculate a time varying lighting value based on said recalled simulation parameter;

wherein the effect simulator is adapted to output said calculated time varying lighting value to the at least one lighting device thereby to simulate a lighting effect.

87. (Currently Amended) The system ~~controller~~ according to Claim 86, wherein the ~~controller~~ system is adapted to control at least one further lighting device.

88. (Currently Amended) The system ~~controller~~ according to Claim 86, ~~wherein the~~ further comprising ~~controller comprises~~ an input interface and wherein the input interface comprises at least one of: a wireless communication interface; a dial; a slider; a display and buttons.

89. (Cancelled).

90. (Currently Amended) The ~~lighting~~ system according to Claim ~~89~~86, wherein said ~~controller and said~~ at least one lighting device ~~are~~ is integrated in a combined unit.

91. (Currently Amended) The ~~lighting~~ system according to Claim ~~89~~86, wherein the at least one lighting device ~~is~~ comprises a lighting device for videography, broadcast, cinematography, studio filming and/or location filming.

92. (Currently Amended) A system ~~lighting device comprising the controller~~ according to Claim 86, wherein the at least one lighting device comprises at least one light emitting diode.

93. (Currently Amended) A lighting device according to Claim 92, wherein the at least one lighting device is ~~a lighting device~~ used for videography, broadcast, cinematography, studio filming and/or location filming.

94. (Previously Presented) A computer program product comprising software code for controlling a lighting device to produce a range of different user customisable lighting effects, the computer program product adapted to perform, when executed, the steps of:

receiving user input of at least one user input simulation parameter to customise a lighting effect;

storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated;

recalling from said memory said at least one stored user input simulation parameter;

calculating, using an effect simulator, a time varying lighting value based on said recalled simulation parameter; and

outputting to said lighting device said time varying lighting value thereby to simulate a lighting effect.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
		§		
Examiner:	Thai N. PHAM	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

LETTER TO CHIEF DRAFTSMAN

Sir:

Permission is requested to correct Figures 2, 4 and 8 as shown in red ink on the attached photocopies.

Since the foregoing are all relative minor changes and do not include new matter, the formal drawings, which are being submitted herewith in an accompanying letter, include the above-requested changes.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: July 1, 2019

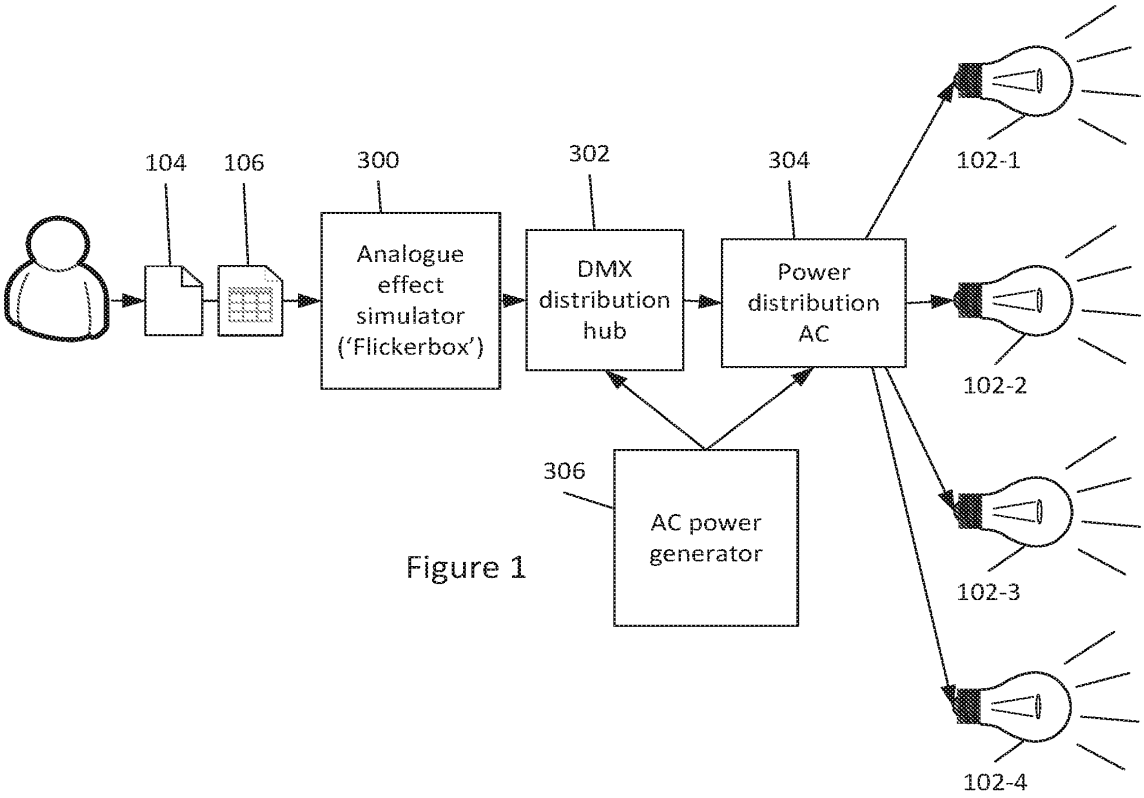


Figure 1

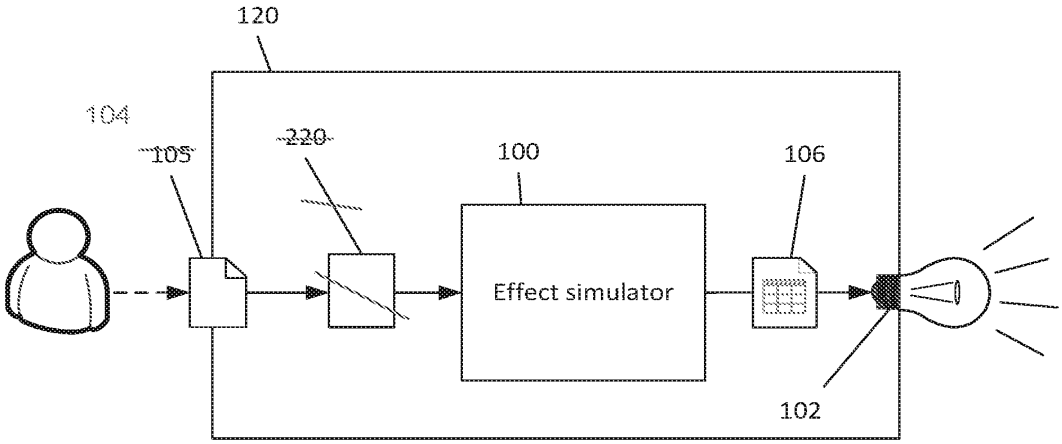


Figure 2

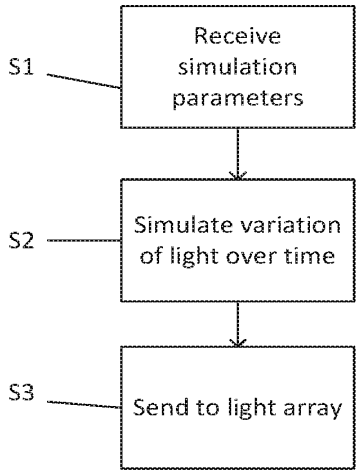


Figure 3

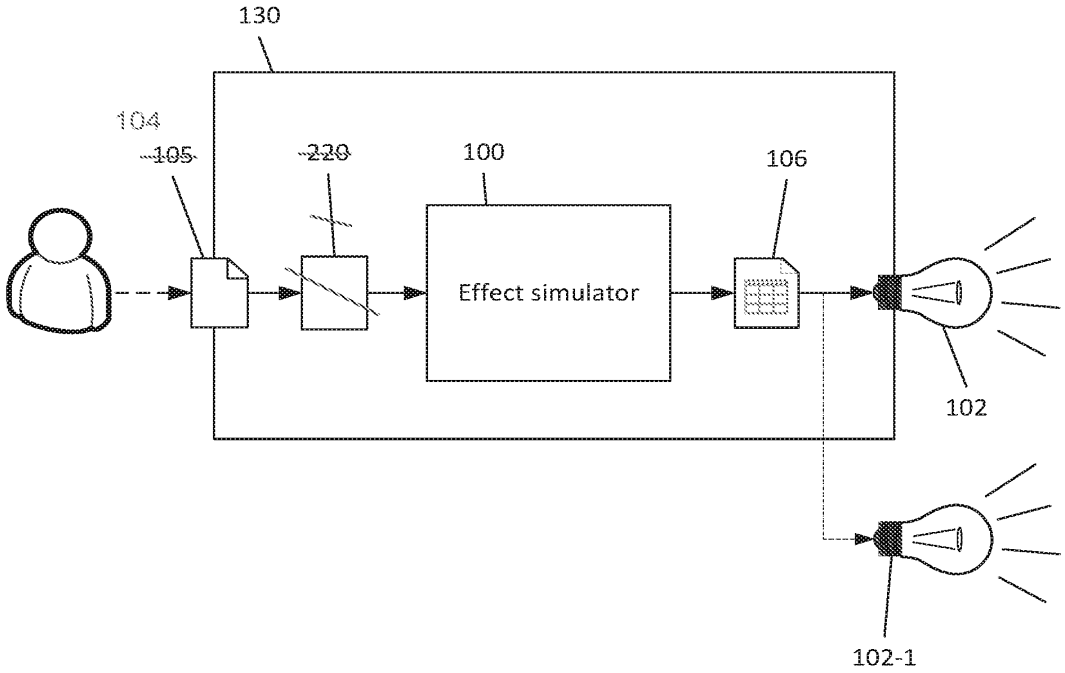


Figure 4

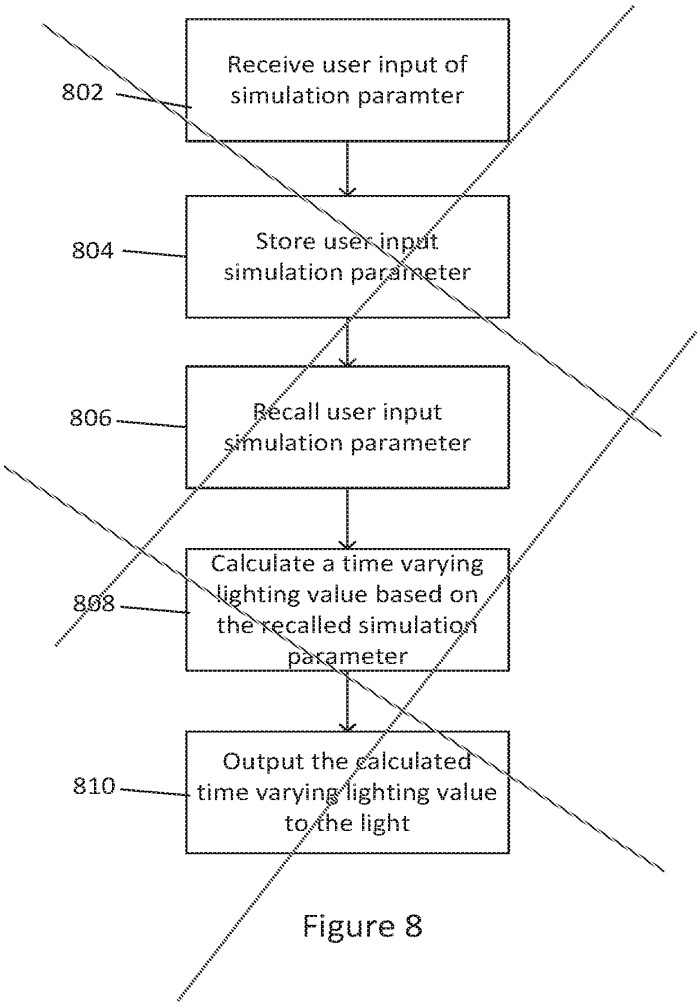

802
Receive user input of simulation paramter
804
Store user input simulation parameter
806
Recall user input simulation parameter
808
Calculate a time varying lighting value based on the recalled simulation parameter
810
Output the calculated time varying lighting value to the light

Figure 8

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
		§		
Examiner:	Thai N. PHAM	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FORMAL DRAWINGS

Sir:

Applicant encloses herewith a new set of formal drawings, five (5) sheets, for the above-identified patent application.

Statement

The content of the replacement drawings includes no new matter.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: July 1, 2019

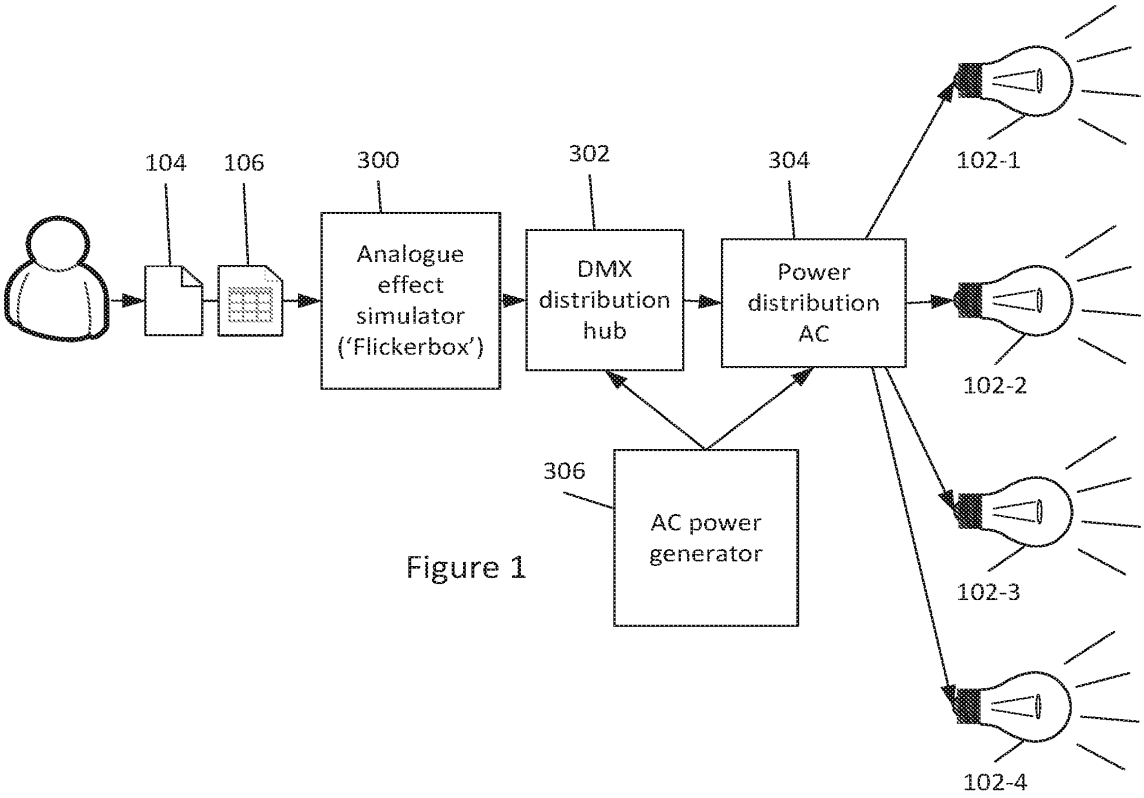


Figure 1

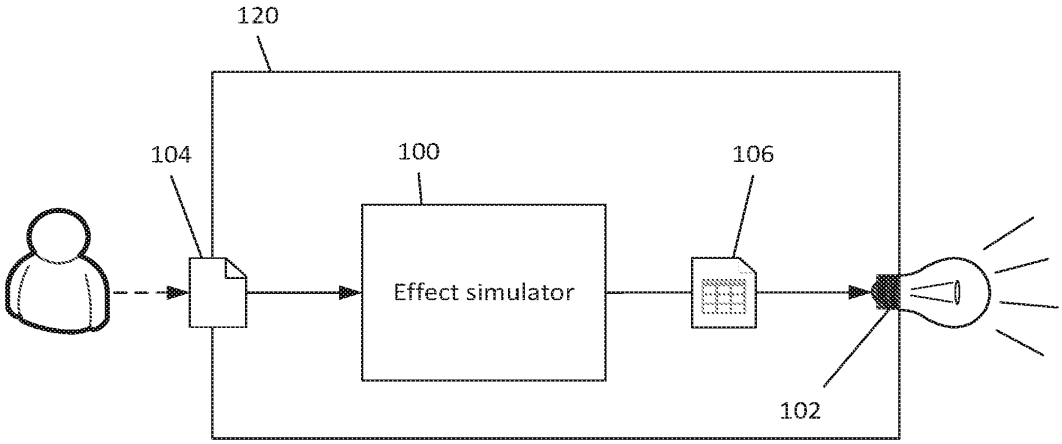


Figure 2

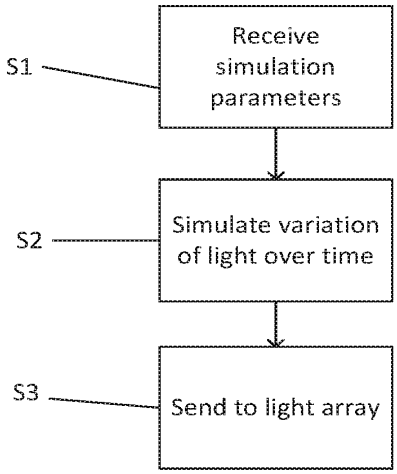


Figure 3

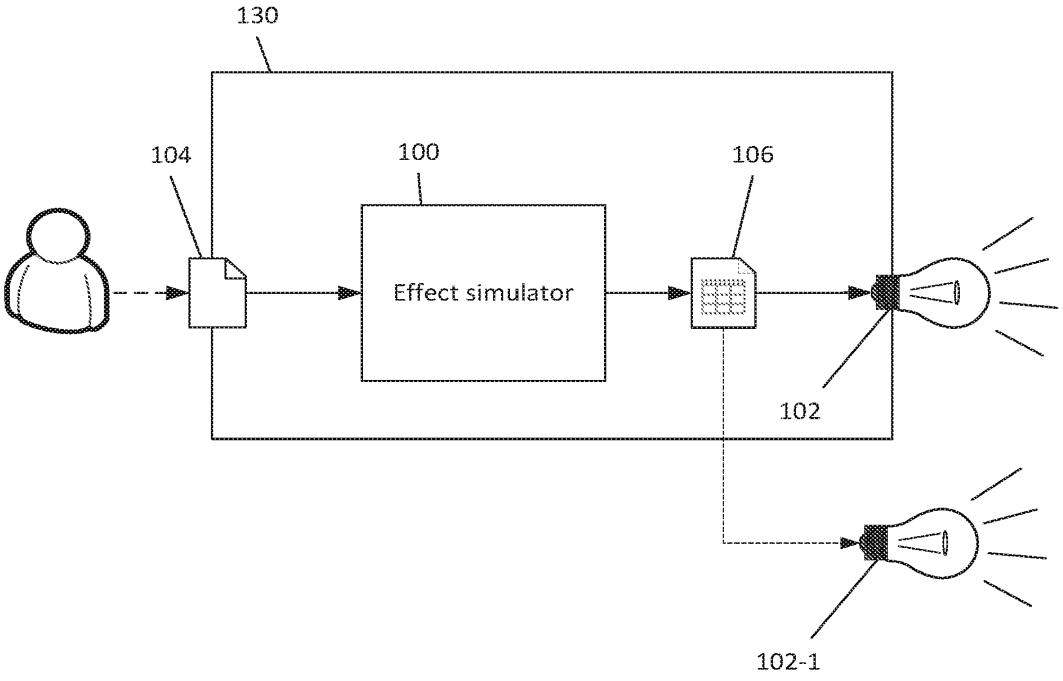


Figure 4

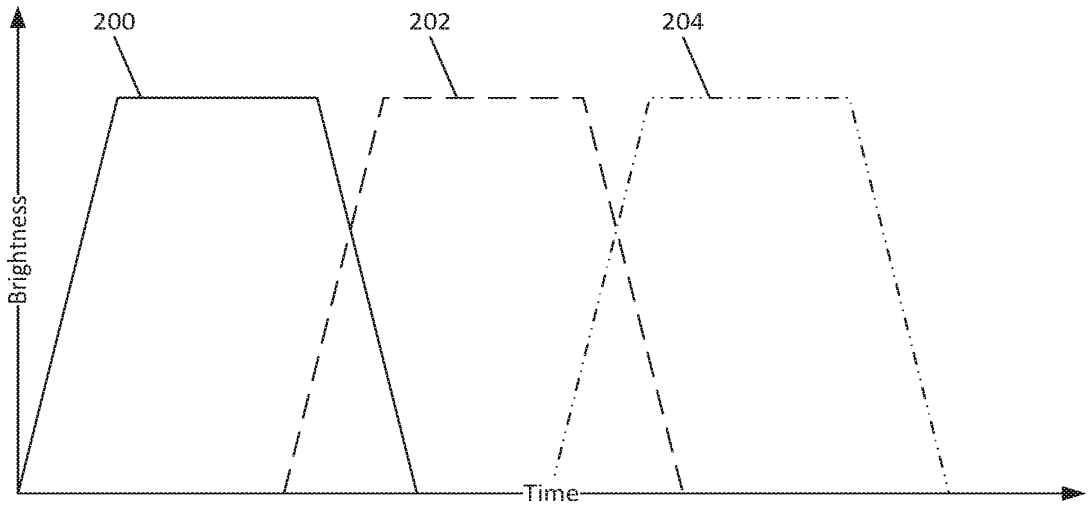


Figure 5

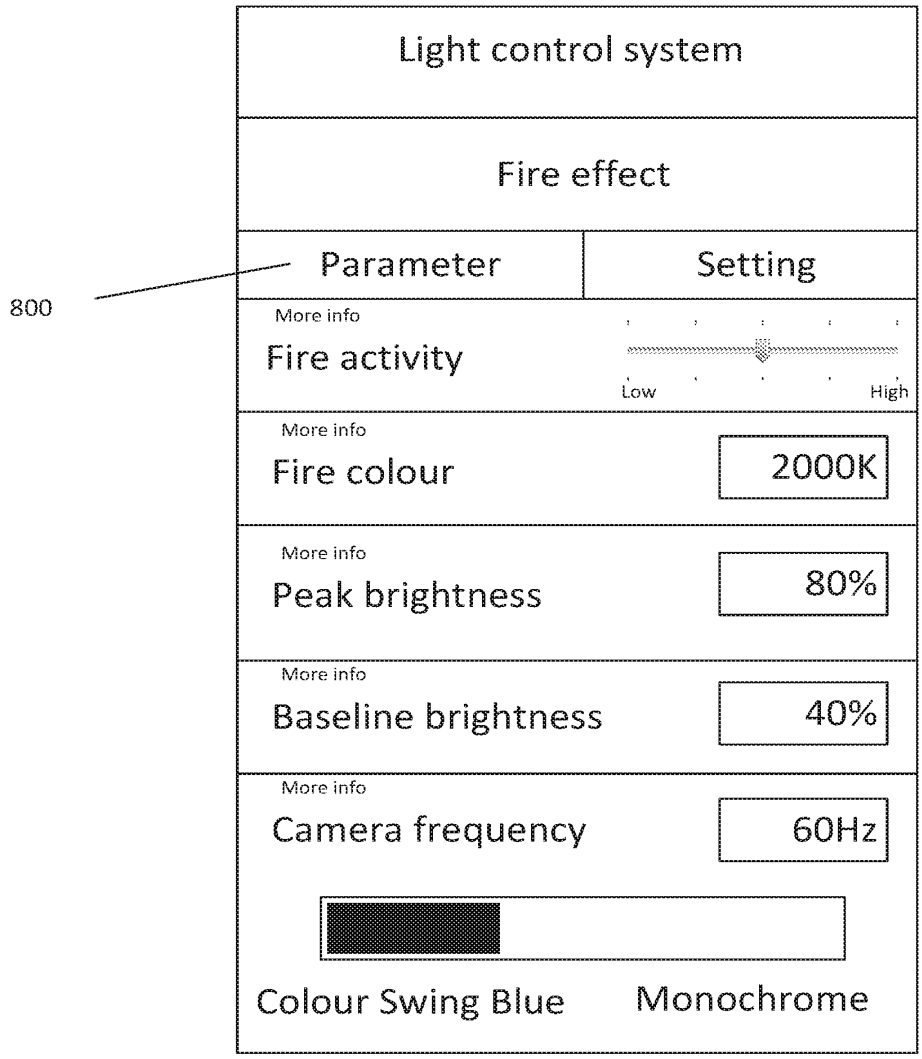

800
Light control system
Fire effect
Parameter
Setting
More info
Fire activity
Low
High
More info
Fire colour
2000K
More info
Peak brightness
80%
More info
Baseline brightness
40%
More info
Camera frequency
60Hz
Colour Swing Blue
Monochrome

Figure 6

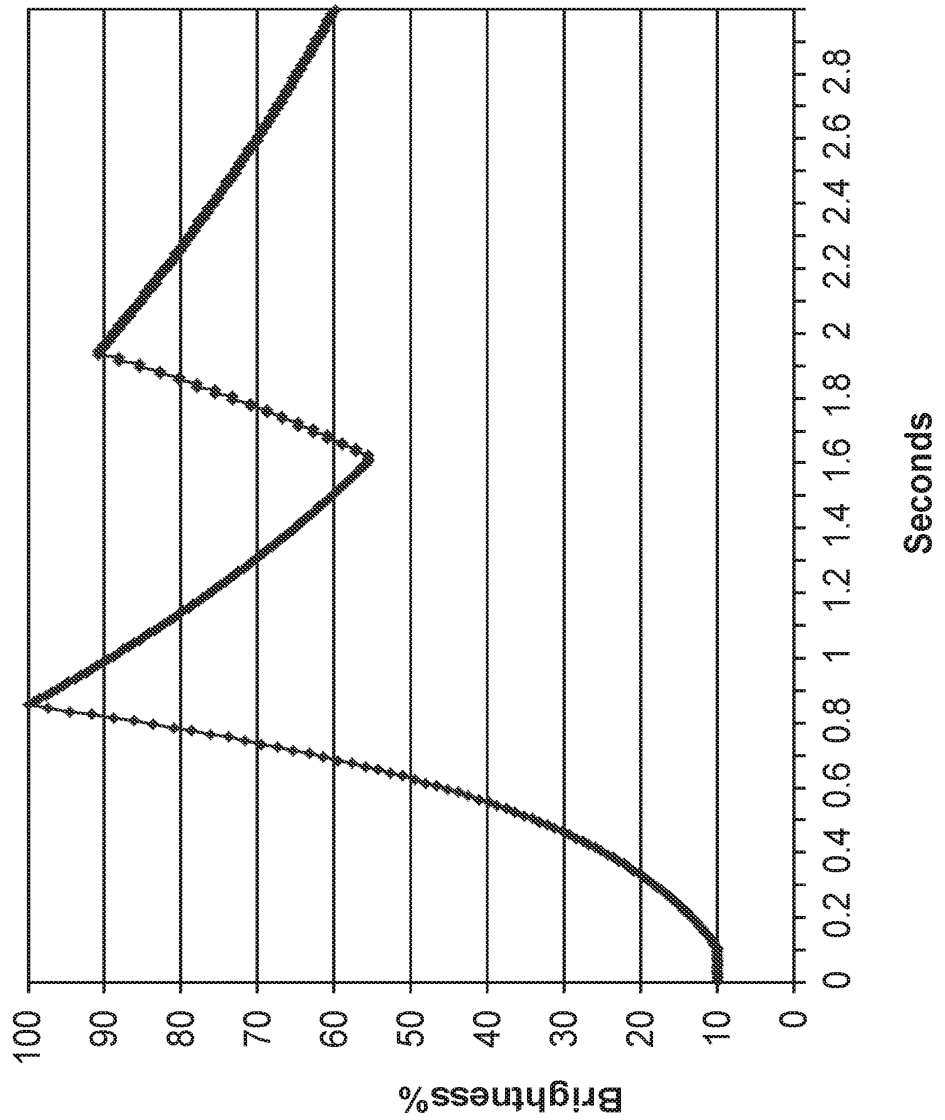

Brightness%
100
90
80
70
60
50
40
30
20
10
0
Seconds
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8

Figure 7

Electronic Patent Application Fee Transmittal	
Application Number:	15481460
Filing Date:	07-Apr-2017
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Filer:	Martin Dennis Moynihan
Attorney Docket Number:	69726
Filed as Small Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
		Total in USD ($)		**1350**

Electronic Acknowledgement Receipt	
EFS ID:	36456530
Application Number:	15481460
International Application Number:	
Confirmation Number:	5642
Title of Invention:	LIGHTING SYSTEM AND CONTROL THEREOF
First Named Inventor/Applicant Name:	Roderick Allen GAMMONS
Customer Number:	67801
Filer:	Martin Dennis Moynihan
Filer Authorized By:	
Attorney Docket Number:	69726
Receipt Date:	01-JUL-2019
Filing Date:	07-APR-2017
Time Stamp:	05:09:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1350
RAM confirmation Number	070119INTEFSW00010070501407
Deposit Account	501407
Authorized User	Martin Moynihan
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		69726ResponsetoFinalOfficeActionof31Dec2018.pdf	534865 674f41ccd5748781e6547dfec74e4bcfe6156699	yes	25

Multipart Description/PDF files in .zip description

Document Description	Start	End
Extension of Time	1	1
Request for Continued Examination (RCE)	2	2
Amendment Submitted/Entered with Filing of CPA/RCE	3	3
Specification	4	5
Claims	6	9
Applicant Arguments/Remarks Made in an Amendment	10	10
Applicant Arguments/Remarks Made in an Amendment	11	15
Transmittal Letter	16	16
Drawings-other than black and white line drawings	17	19
Transmittal Letter	20	20
Drawings-only black and white line drawings	21	25

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32071 3da60b322f72bb489f558d563e5c5989e91bda55	no	2

Warnings:

Information:

Total Files Size (in bytes):	566936

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION AND FEE FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)

Sir:

(1) This is a petition for an extension of time to respond to the Final Office Action mailed **December 31, 2018**, for a period of **three (3) months**.

(2) Applicant is a:
__X__ small entity ___ verified statement attached
_____ verified statement filed

(3) Extensions (months)	Fees for small entity	Fee for other than small entity
☑ three months	**$ 700.00**	$ 1,400.00

(4) An amendment __X__ is filed herewith
_____ has been filed

(5) Please charge the extension fee and any other amount required to Deposit Account No. **50-1407**.

(6) The Commissioner is hereby authorized and requested to charge any additional fees which may be required in connection with this application or credit any overpayment to Deposit Account No. **50-1407**. This authorization and request is not limited to payment of all fees associated with this communication, including any Extension of Time fee, not covered by check or specific authorization, but is also intended to include all fees for the presentation of extra claims under 37 CFR §1.16 and all patent processing fees under 37 CFR §1.17 throughout the prosecution of the case. This blanket authorization does not include patent issue fees under 37 CFR §1.18.

Respectfully submitted,
/Martin D. Moynihan/
Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: July 1, 2019

Amendments to the Drawings:

Applicant attaches herewith a set of drawings with amendments to Figures 2 and 4 and removed new Figure 8. A complete set of formal drawings (5 sheets) are also attached herewith as required by the Examiner.

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 75-94 are in this Application.

Specification Objections

Examiner indicates that the amendment filed on July 9, 2018 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. Without prejudice Applicant amended the specification and drawings to remove the amendments to Figures 2 and 4 and the newly added figure 8.

Claim Rejections - 35 USC § 112

Claims 75-94 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. Specifically, Examiner argues that **Claims 75, 86 and 94** include limitations that are not disclosed, described in the specifications of the original disclosure. Some exemplary limitations from these claims are herein recited for further reviews:

"*receiving user input of at least one user input simulation parameter to customize a lighting effect; storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; recalling from said memory said at least one stored user input simulation parameter*" recited in **Claims 75 and 94**, and

"*a memory adapted to store said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; and an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter*" recited in **Claim 86**.

An objective standard for determining compliance with the written description requirement is, "*does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.*" In re Gosteli, 872

F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "*reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter*." Ralston Purina Co. v. Far-Mar-Co., Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). Applicant provides herein a table that reasonably conveys to the artisan that the inventor had possession at that time of the currently claimed subject matter:

Claim number	**Claim element**	**Exemplary passage(s) of the description as filed providing support and enablement**
75 and 94	*receiving user input of at least one user input simulation parameter to customize a lighting effect;*	p. 4, ll. 17-19 p. 11, ll. 7-10 p. 14 l. 29 – p. 15 l. 8
75 and 94	*storing in memory said at least one user input simulation parameter,*	p. 16, ll. 17-21 p. 17, ll. 9-13
75 and 94	*said at least one user input simulation parameter depending on the lighting effect being simulated;*	p. 13 ll. 24-26 p. 16 l. 15 – p. 17 l. 7
75 and 94	*recalling from said memory said at least one stored user input simulation parameter*	p. 17 ll. 12-13
86	*a memory adapted to store said at least one user input simulation parameter,*	p. 16, ll. 17-21 p. 17, ll. 9-13
86	*said at least one user input simulation parameter depending on the lighting effect being simulated;*	p. 13 ll. 24-26 p. 16 l. 15 – p. 17 l. 7
86	*and an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter*	p. 17 ll. 12-13

It is also noted that certain of the present claim limitations (for example storing in memory, and recalling from said memory) are steps that would be within the knowledge of the skilled person, who would therefore be able to perform such steps if he were directed to do so in accordance with the claimed invention. Examiner is reminded that the subject matter of a claim need not be described literally in order for the disclosure to satisfy the description requirement. The above table exemplify that the pending claims are adequately supported and enabled by the description of the application as originally filed.

Drawings Objections

Drawings have been objected to as the terms "*a controller for controlling at least one lighting device*," "*a calculating device*" "*a wired or wireless interface*," and "*a random number source*" must be shown or the features canceled from the claims. Applicant carefully reviewed the pending claims and noted that the pending claims do not recite any of: "*a calculating device*" "*a wired or wireless interface*," and "*a random number source*". Applicant removed the term controller from the claims, reciting instead a system, a term which is supported in the specification as filed.

Double Patenting

Claims 75-94 are provisionally rejected on the ground of non-statutory double patenting as being unpatentable over **Claims 1-20** of co-pending application No. 15/820469. Applicant hereby files a terminal disclaimer signed in compliance with 37 CFR 1.321 (b).

Conclusion

No Disclaimers or Disavowals

Although the present response may include amendments to the application or claims, or characterizations of claim scope or referenced art, Applicants do not concede that previously pending claims in this application are not patentable over the cited references. Rather, any amendments or characterizations are being made to expedite the issuance. Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that relate to subject matter supported by the instant application, including subject matter specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this application, or any parent, child or related prosecution history should not infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the instant application.

In view of the above amendments and remarks it is respectfully submitted that the claims are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

While the above amendments and/or remarks are believed to be sufficient to overcome the Examiner's rejections, any omissions as to assertions by the Examiner or certain requirements that may be applicable to such rejections (e.g., assertions regarding dependent claims, whether a reference constitutes prior art, whether references are legally combinable for obviousness purposes) is not an admission that such assertions are accurate or such requirements have been met. Applicant reserves the right to analyze and dispute such positions in the future.

Should the Examiner have any questions or comments as to the form, content, or entry of this paper, the Examiner is requested to contact the undersigned at the telephone number below prior to mailing the next Official Action. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Any fees associated with this paper, for its entry into the record, may be charged to Deposit Account No. 50-1407.

During the pendency of this application, the Commissioner for Patents is hereby authorized to charge payment of any filing fees for presentation of extra claims under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17, or credit any overpayment, to Deposit Account No. 50-1407.

The Commissioner for Patents is hereby authorized to treat any concurrent or future reply, requiring a petition for extension of time under 37 CFR § 1.136 for its timely submission, as incorporating a petition for extension of time for the appropriate length of time if not submitted with the reply.

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR § 1.33 and 37 CFR § 1.34 concerning any subject matter of this application by video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications may be made of record in the application file.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: July 1, 2019

Enclosures:

- Petition for Extension (3 Months)
- Letter to Chief Draftsman
- Annotated Drawing Sheets
- Formal Drawing Transmittal Sheet
- Complete Set of Replacement Drawing Sheets

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726	5642

67801 7590 12/31/2018

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, THAI N	

ART UNIT	PAPER NUMBER
2844	

NOTIFICATION DATE	DELIVERY MODE
12/31/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@ipatent.co.il

Office Action Summary	**Application No.** 15/481,460	**Applicant(s)** GAMMONS et al.	
	Examiner THAI N PHAM	**Art Unit** 2844	**AIA Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 09/07/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 75-94 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 75-94 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☑ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 09/07/2018 is/are: a)☐ accepted or b)☑ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 11/28/2017 and 07/30/2018.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

This Office Action is responsive to the applicant's amendment submitted on 09/07/2018. Claims 55-74 have been canceled. Claims 75-94 are newly added. Figures 2 and 4 have been amended with a replacement sheet, and figure 8 is newly added. Thus, claims 75-94 are currently pending in the instant application.

Response to Amendment

1. The amendment filed 09/07/2018 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

"receiving user input of at least one user input simulation parameter to customise a lighting effect; storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; recalling from said memory said at least one stored user input simulation parameter" recites in claims 75 and 94,

"a memory adapted to store said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; and an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter" recites in claim 86.

New claims 75, 86 and 94 are directed to an invention that is independent or distinct from the invention originally claimed.

Applicant is required to cancel the new matter in the reply to this Office Action.

Specification

2. The amendment filed on 09/07/2018 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the prior-filed application is as follows:

Figures 2 and 4 amended and figure 8 is newly added in the amendments to the specification, the limitation recites "receiving user input of at least one user input simulation parameter to customise a lighting effect; **storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; recalling from said memory said at least one stored user input simulation parameter**" recites in claims 75 and 94, and the limitation recites "**a memory adapted to store said at least one user input simulation parameter**, said at least one user input simulation parameter depending on the lighting effect being simulated; **and an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter**" recites in claim 86 do not disclose in the original disclosure. The amendment cannot introduce a new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 75-94 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

The disclosure of the aforementioned prior-filed application fails to provide adequate support or enablement in the manner provided by the first paragraph of 355 UIS.C. 112 for one or more claims of this application: claims 75-94.

Specifically, claims 75, 86 and 94 include limitations that are not disclosed, described in the specifications of the original disclosure. Some exemplary limitations from these claims are herein recited for further reviews:

"receiving user input of at least one user input simulation parameter to customise a lighting effect; storing in memory said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being

simulated; recalling from said memory said at least one stored user input simulation parameter" recites in claims 75 and 94,

"a memory adapted to store said at least one user input simulation parameter, said at least one user input simulation parameter depending on the lighting effect being simulated; and an effect simulator adapted to: recall from said memory said at least one stored user input simulation parameter" recites in claim 86.

Note: for compact prosecution purposes the examiner interprets the claims above as best understood of the original claims and maintain the rejection of the previous office action.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation recites "a controller for controlling at least one lighting device," "a calculating device" "a wired or wireless interface," and "a random number source" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121 (d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121 (d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show “a controller for controlling at least one lighting device,” “a calculating device” “a wired or wireless interface,” and “a random number source” as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121 (d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121 (d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file

provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 55-74 or (newly claims 75-94) are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of copending application No. 15820469. Although the claims at issue are not identical, they are not patentably distinct from each other because the claim limitations of the copending application no. 15820469 clearly anticipated the claim limitations of the pending application. They are containing the same essential limitations. They are both containing same structure includes controller couple to a bicycle wheel configured to do the same function.

Regarding claims 55. 67 and 74, the limitations of the applicant's claims are obvious variations of the mapped claims above. While the pending claim uses different vernacular than the copending claims, one of ordinary skilled in the art would recognize that the claims are directed to substantially the same invention. The principle difference is that the pending claims are broader in scope than the copending claims. It

is generally understood that anticipation is the epitome of obviousness. Alternatively, the elimination of an element and its function is generally held to be within the skill of the art.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Response to Arguments

7. Applicant's arguments filed 09/07/2018 have been fully considered but they are not persuasive.

The amendment introduces new matter into the disclosure, therefore the drawings and the new claims are not considered. Therefore the claims are interprets as best understood as the original claims.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THAI N PHAM whose telephone number is (571)270-5518. The examiner can normally be reached on M-F 9:00 am-5:00 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DOUGLAS OWENS can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thai Pham/
Primary Examiner, Art Unit 2844
12/20/2018

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018							
	1	-	-							
	2	-	-							
	3	-	-							
	4	-	-							
	5	-	-							
	6	-	-							
	7	-	-							
	8	-	-							
	9	-	-							
	10	-	-							
	11	-	-							
	12	-	-							
	13	-	-							
	14	-	-							
	15	-	-							
	16	-	-							
	17	-	-							
	18	-	-							
	19	-	-							
	20	-	-							
	21	-	-							
	22	-	-							
	23	-	-							
	24	-	-							
	25	-	-							
	26	-	-							
	27	-	-							
	28	-	-							
	29	-	-							
	30	-	-							
	31	-	-							
	32	-	-							
	33	-	-							
	34	-	-							
	35	-	-							
	36	-	-							
	37	-	-							
	38	-	-							
	39	-	-							
	40	-	-							
	41	-	-							
	42	-	-							

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 403 of 1082

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CLAIM		DATE								
Final	Original	03/05/2018	12/20/2018							
	43	-	-							
	44	-	-							
	45	-	-							
	46	-	-							
	47	-	-							
	48	-	-							
	49	-	-							
	50	-	-							
	51	-	-							
	52	-	-							
	53	-	-							
	54	-	-							
	55	✓	-							
	56	✓	-							
	57	✓	-							
	58	✓	-							
	59	✓	-							
	60	✓	-							
	61	✓	-							
	62	✓	-							
	63	✓	-							
	64	✓	-							
	65	✓	-							
	66	✓	-							
	67	✓	-							
	68	✓	-							
	69	✓	-							
	70	✓	-							
	71	✓	-							
	72	✓	-							
	73	✓	-							
	74	✓	-							
	75		✓							
	76		✓							
	77		✓							
	78		✓							
	79		✓							
	80		✓							
	81		✓							
	82		✓							
	83		✓							
	84		✓							
	85		✓							
	86		✓							
	87		✓							
	88		✓							
	89		✓							
	90		✓							
	91		✓							
	92		✓							
	93		✓							
	94		✓							

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 404 of 1082

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/481,460	GAMMONS et al.
	Examiner	Art Unit
	THAI N PHAM	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003	3/5/2018	TP
Same as above	12/20/2018	TP

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, Text search, Inventor name search, Assignment data search, backward and forward search	3/5/2018	TP
Looked at IDS	3/5/2018	TP
Looked at PCT and ISA search report	3/5/2018	TP
Looked at IDS	12/20/2018	TP
Updated East search	12/20/2018	TP

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

Exhibit 1002
Aputure v. Rotolight - IPR2024-01422
Page 405 of 1082

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	158	("20080084701" | "20080259598" | "20080278957" | "20080304269" | "20090184666" | "5851063" | "5912477" | "7334917" | "20070274080" | "20080089053" | "20080137347" | "20080278952" | "20090160363" | "6563139" | "7213940" | "7358954" | "5851063" | "20060105482" | "20070171145" | "20070263393" | "20070278934" | "20080084685" | "20080106907" | "20090246895" | "20100165001" | "6132072" | "7005679" | "7144130" | "20070280624" | "20080278950" | "20100079059" | "20100103678" | "20070139923" | "20070223219" | "20080106895" | "20070170447" | "20070236911" | "20070278974" | "20070279440" | "20080084700" | "20080112168" | "20080112183" | "20080310154" | "20090108269" | "20100102967" | "20100254129" | "5631190" | "7564180" | "7759854" | "20070274063" | "20070279903" | "20080304261" | "20100259182" | "5803579" | "7135664" | "7213940" | "20070137074" | "20080088248" | "20080112170" | "20080130298" | "20080309255" | "20100102199" | "4918487").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:00
L3	2	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/12/21 19:41
S1	1	"15481460"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:32
S2	4	(("GAMMONS") near3 ("Roderick") near3 ("Allen")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:33
S3	378	(("FRANCIS") near3 ("Andrew")).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:34
S4	3	(("GAMMONS") near3 ("Roderick") near3 ("Aaron")).INV.	US-PGPUB; USPAT;	OR	ON	2018/02/20 11:34

			USOCR			
S5	3	S2 and S3 and S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:34
S6	1	((("ROTOLIGHT") near3 ("LIMITED")).AANM.	USPAT	OR	ON	2018/02/20 11:35
S8	22	("20070159347" | "20080129226" | "5307295" | "5921659" | "5924784" | "7038399" | "7353071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:44
S9	3	("3787752").PN. OR ("7365649").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/02/20 11:46
S10	26	"2424525"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 11:48
S11	48723	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:23
S12	4	"20080129226"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 12:24
S13	1	"15820469"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/02/20 15:21
S14	5	"2005052751"	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/01 18:49
S15	9	light$4 with control$4 with simulat$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:39
S16	574	light$4 with control$4 with (calculat$4 or comput$4) with random	US-PGPUB; USPAT;	OR	ON	2018/03/02 17:41

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S17	48822	(H05B37/02 OR H05B37/0272 OR H05B37/029 OR H05B37/0281 OR H05B33/08 OR H05B33/0842 OR F21V23/00 OR F21V23/003).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S18	37	S17 and S16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:41
S19	181	light$4 same control$4 same simulat$4 same (calculat$4 or comput$4) same random same (wire$1less or wifi or zigbee) same user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/02 17:50
S21	2	"15849793"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/14 15:59

12/ 21/ 2018 8:01:18 PM
C:\ Users\ tpham3\ Documents\ EAST\ Workspaces\ 15481460.wsp

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	PHAM Thai N.
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2004/0257007	23-Dec-2004	Lys et al.	
	2	2014/0139130	22-May-2014	Upton	
	3	2018/0094798	05-Apr-2018	Gammons et al.	
	4	2018/0112862	26-Apr-2018	Gammons et al.	
	5	2018/0135842	17-May-2018	Gammons et al.	
	6	7,777,427	17-Aug-2010	Stalker III	
	7	8,253,666	28-Aug-2012	Shteynberg et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3]- Number [4]- Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
	8	CN 103090238	08-May-2013	Zheng et al.		
	9	CN 103313457	18-Sep-2013	Xing et al.		
	10	CN 103313458	18-Sep-2013	Xing et al.		
	11	CN 202841602	27-Mar-2013	Lv		
	12	EP 2120512	18-Nov-2009	Koninklijke Philips Electronics		
	13	EP 3002995	06-Apr-2016	Van de Sluis et al.		
	14	WO 2017/097741	15-Jun-2017	Van de Sluis et al.		

Examiner Signature	/Thai Pham/	Date Considered	12/21/2018

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	15/481,460
				Filing Date	April 07, 2017
				First Named Inventor	GAMMONS Roderick Allen et al
(*use as many sheets as necessary*)				Group Art Unit	2844
				Examiner Name	PHAM Thai N.
Sheet	2	Of	2	Attorney Docket Number	69726

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	15	Official Action Dated 10 April 2018 From the US Patent and Trademark Office Re. Application No. 15/820,469. (19 pages)	
	16	Official Action Dated 22 March 2018 From the US Patent and Trademark Office Re. Application No. 15/849,793. (14 pages)	
	17	Official Action Dated 28 March 2018 From the US Patent and Trademark Office Re. Application No. 15/849,819. (17 pages)	
	18	Philips "Controlling LED Lighting: Transform Environments, Provide Confort and Security, Save Energy", Philips Color Kinetics, Product Catalog, P.1-36, 2011.	

Examiner Signature	/Thai Pham/	Date Considered	12/21/2018

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

Bibliographic Data

Application No: 15/481,460

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: _____ (Examiner's Signature) _____ (Initials)

Title: LIGHTING SYSTEM AND CONTROL THEREOF

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/07/2017	315	2844	69726
RULE			

APPLICANTS

Rotolight Limited, London, UNITED KINGDOM

INVENTORS

Roderick Allen GAMMONS Staines Upon Thames, UNITED KINGDOM

Andrew FRANCIS Witham, UNITED KINGDOM

Roderick Aaron GAMMONS Winkfield, UNITED KINGDOM

Stefan Lange Shepperton, UNITED KINGDOM

CONTINUING DATA

This application has PRO of 62319809 04/08/2016

FOREIGN APPLICATIONS

UNITED KINGDOM 1606907.2 04/20/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED KINGDOM

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215
UNITED STATES

FILING FEE RECEIVED

$1,100

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Art Unit	2844
Examiner Name	Thai Pham
Attorney Docket Number	69726

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2007/0159347	12-Jul-2007	Weitzel	
	2	2008/0129226	05-Jun-2008	DeWitt et al.	
	3	5,307,295	26-Apr-1994	Taylor et al.	
	4	5,921,659	13-Jul-1999	Hunt et al.	
	5	5,924,784	20-Jul-1999	Chliwnyj et al.	
	6	7,038,399	02-May-2006	Lys et al.	
	7	7,353,071	01-Apr-2008	Blackwell et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3] Number [4] Kind Code [5] (*if known*)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
	8	GB 2209229	04-May-1989	Pearce-Harvey et al.		
	9	EP 2383608	02-Nov-2011	Wu		
	10	GB 2424525	27-Sep-2006	Rafter et al.		
	11	GB 2482562	08-Feb-2012	Hjerde		
	12	JP H0448588	18-Feb-1992	Iwata		
	13	WO 01/05195	18-Jan-2001	Lys et al.		
	14	WO 2005/052751	09-Jun-2005	Chemel et al.		

Examiner Signature	/Thai Pham/	Date Considered	12/20/2018

[*] EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(*use as many sheets as necessary*)

Complete if Known	
Application Number	15/481,460
Filing Date	April 07, 2017
First Named Inventor	GAMMONS Roderick Allen et al
Group Art Unit	2844
Examiner Name	Thai Pham
Attorney Docket Number	69726

Sheet	2	Of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	15	European Search Report and the European Search Opinion Dated 01 August 2017 From the European Patent Office Re. Application No. 17165609.3. (7 Pages)	
	16	Patents Act 1977: Combined Search and Examination Report Under Sections 17 and 18(3) Dated 13 June 2016 From the Intellectual Property Office of the United Kingdom Re. Application No. GB1606907.2. (7 Pages)	
	17	Patents Act 1977: Examination Report under Section 18(3) Dated 30 August 2017 From the Intellectual Property Office of the United Kingdom Re. Application No. GB1606907.2 (3 Pages)	

Examiner Signature	/Thai Pham/	Date Considered	12/20/2018

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /TP/

DO NOT ENTER: /TP/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§		
		§		
	Roderick Allen GAMMONS et al.	§		
		§	Confirmation No.:	5642
Serial No.:	15/481,460	§		
		§		
Filed:	April 7, 2017	§	Group Art Unit:	2844
		§		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	§		
		§		
		§	Attorney Docket:	**69726**
		§		
Examiner:	Thai N. PHAM	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

Sir:

This is in response to the United States Patent and Trademark Office Action mailed March 9, 2018, which response is being made on or before September 9, 2018, and for which a three month extension of time fee is due and enclosed herewith.

Applicant submits this response for entry into the record, in which:

Amendments to the Specification begin on page 2.
Amendments to the Claims begin on page 4.
Amendments to the Drawings begin on page 8.
Remarks begin on page 9.

Please amend the above-identified application as follows:

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/481,460	04/07/2017	2844	800	69726	20	3

CONFIRMATION NO. 5642

UPDATED FILING RECEIPT

67801
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

OC000000103859488

Date Mailed: 11/20/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Roderick Allen GAMMONS, Staines Upon Thames, UNITED KINGDOM;
Andrew FRANCIS, Witham, UNITED KINGDOM;
Roderick Aaron GAMMONS, Winkfield, UNITED KINGDOM;
Stefan Lange, Shepperton, UNITED KINGDOM;

Applicant(s)

Rotolight Limited, London, UNITED KINGDOM;

Power of Attorney: The patent practitioners associated with Customer Number 67801

Domestic Priority data as claimed by applicant

This appln claims benefit of 62/319,809 04/08/2016

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
UNITED KINGDOM 1606907.2 04/20/2016 Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

** **SMALL ENTITY** **

Title

LIGHTING SYSTEM AND CONTROL THEREOF

Preliminary Class

315

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/481,460	04/07/2017	Roderick Allen GAMMONS	69726

CONFIRMATION NO. 5642

67801
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

37 CFR 1.48 ACKNOWLEDGEMENT LETTER

OC000000103859467

Date Mailed: 11/20/2018

NOTICE OF ACCEPTANCE OF REQUEST UNDER 37 CFR 1.48(a)

This is in response to the applicant's request under 37 CFR 1.48(a) submitted on 11/12/2018.

The request under 37 CFR 1.48(a) to correct the inventorship, to correct or update the name of an inventor, or to correct the order of names of joint inventors is accepted.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/byemane/

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 11/16/2018

CVORACHA SALE #00000004 Mailroom Dt: 11/12/2018 501407 15481460
01 FC : 2830 70.00 DA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:			
	Roderick Allen GAMMONS et al.	Confirmation No.:	5642
Serial No.:	15/481,460	Art Unit:	2844
Filed:	April 7, 2017		
For:	LIGHTING SYSTEM AND CONTROL THEREOF	Attorney Docket:	**69726**
Examiner:	Thai N. PHAM		

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO ADD INVENTORS UNDER 37 C.F.R. §1.48(c)

Sir:

This is a Petition to Add Inventor, for which a fee of $300.00 is due. Please charge my Deposit Account 50-1407 for this fee, as well as any additional fees due.

The above-identified patent application as originally filed included three (3) inventors, namely Roderick Allen GAMMONS, Andrew FRANCIS and Roderick Aaron GAMMONS. By error, without deceptive intent, the name of one (1) additional inventor, namely **Stefan LANGE**, was left out.

An executed Declaration and Statement under 37 CFR 3.73(c) are attached herewith, along with a Supplemental Application Data Sheet (ADS).

Consequently, please add **Stefan LANGE** as the 4th inventor to the above-identified patent application.

Respectfully submitted,

/Martin D. Moynihan/

Martin D. Moynihan
Registration No. 40338
Telephone: (703) 859-9634

Date: November 12, 2018

Doc Code: Oath
Document Description: Oath or declaration filed

PTO/AIA/08 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☒ Declaration Submitted With Initial Filing

☐ Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(f)) required

Attorney Docket Number	69726
First Named Inventor	**Roderick Allen GAMMONS**
COMPLETE IF KNOWN	
Application Number	15/481,460
Filing Date	April 7, 2017
Art Unit	2844
Examiners Name	Thai N. PHAM

LIGHTING SYSTEM AND CONTROL THEREOF

(Title of the Invention)

As below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application,
OR

☒ United States Application or PCT Number 15/481,460
Filed On April 7, 2017

The above-identified application was made or authorized to be made by me.

I believe I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Authorization To Permit Access To Application by Participating Office

☑ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified patent application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified patent application is filed to have access to the above-identified patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the above-identified patent application with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application; and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Attorney Docket Number: 69726

PTO/AIA/08 (08-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION — Utility or Design Patent Application

Direct all Correspondence to: ☒ The address associated with Customer Number: 67801 OR ☐ Correspondence address below

Name		
Address		
City	State	Zip
Country	Telephone	Email

I have reviewed and understand the contents of the above identified application.

I acknowledge the duty to disclose information material to the patentability of the claims, as defined by 37 CFR 1.56.

LEGAL NAME OF SOLE OR FIRST INVENTOR:

(E.g., Given Name (first and middle (if any)) and Family Name or Surname)

Roderick Allen GAMMONS

Inventor's Signature 	Date (Optional)

Residence: City	State	Country
Staines Upon Thames	**Surrey**	**Great Britain**

Mailing Address

135 Chertsey Lane

City	State	Zip	Country
Staines Upon Thames	**Surrey**	**TW18 3LR**	**Great Britain**

☒ Additional inventors are being named on the 1 supplemental sheet(s) PTO/AIA/10 attached hereto

Attorney Docket Number: 69726

PTO/AIA/10 (06-12)[B]

Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

SUPPLEMENTAL SHEET FOR DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet (for PTO/AIA/08,09)

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Andrew FRANCIS

Inventor's Signature	Date (Optional)

Residence: City	State	Country
Witham	**Essex**	**Great Britain**

4 Wickham Bishops
Mailing Address

City	State	Zip	Country
Witham	**Essex**	**CM8 3NU**	**Great Britain**

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Roderick Aaron GAMMONS

Inventor's Signature	Date (Optional)

Residence: City	State	Country
Winkfield	**Windsor**	

Vetch Cottage, Lovel Road,
Mailing Address

City	State	Zip	Country
Winkfield	**Windsor**	**SL4 2EU**	**Great Britain**

Legal Name of Additional Joint Inventor, if any:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)
Stefan LANGE

Inventor's Signature	Date (Optional)
	25th October 2018

Residence: City	State	Country
Shepperton	**Middlesex**	**Great Britain**

Cedar Lodge, Towpath
Mailing Address

City	State	Zip	Country
Shepperton	**Middlesex**	**TW17 9LL**	**Great Britain**

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.