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Please find below and/or attached an Office communication concerning this application or proceeding.

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jheino@dkattorneys.com
jlowe@dkattorneys.com

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MATTHEW MURPHY

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Appeal 2019-004903  
Application 15/628,117  
Technology Center 2800

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Before JEFFREY T. SMITH, JAMES C. HOUSEL, and  
BRIAN D. RANGE, *Administrative Patent Judges*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 13–17. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.<sup>2</sup>

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as the Inventor, Matthew Murphy. Appeal Brief (“Appeal Br.”) filed March 12, 2019, 1.

<sup>2</sup> This Decision also cites to the original Specification (“Spec.”) filed June 20, 2017, the amended Specification (“Amended Spec.”) filed September 7, 2018, the Final Office Action (“Final Act.”) dated November 1, 2018, the

### CLAIMED SUBJECT MATTER

The invention relates to a linear control system and method for color rendering of red, green, and blue (“RGB”) light emitting diode (“LED”) light sources. Spec. Title, ¶ 2. Appellant discloses that LED light color and intensity (or brightness) are typically controlled by pulse width modulation (“PWM”) because it is easier to implement, more efficient, smaller, and generates less heat than linear control wherein the load driver current is not digital, i.e., analog. *Id.* ¶¶ 2, 4, 5. However, Appellant further discloses that linear control, unlike PWM, does not generate electrical magnetic interference (“EMI”) which emits radio frequency interference (“RFI”) noise that can adversely affect other electronic equipment operating in the vicinity. *Id.* ¶¶ 2, 3, 5. For example, Appellant discloses that, in the case of RGB LED lighting control for color reproduction in a magnetic resonance imaging (“MRI”) scan room, PWM control generates artifacts in the MRI scan image that can seriously impair the quality of the imaging results. *Id.* ¶¶ 3, 4. According to Appellant, linear control, wherein the load driver current is not digital, does not have sharp edges, and the only frequency is a sinewave ripple, solves this EMI problem. *Id.* ¶ 5.

Claim 13, reproduced below from the Claims Appendix to the Appeal Brief, is illustrative of the claimed subject matter:

13. A method, comprising:

generating a control signal;

transmitting the control signal to a plurality of RGB LEDs;

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Examiner’s Answer (“Ans.”) dated April 4, 2019, and the Reply Brief (“Reply Br.”) filed June 4, 2019.

receiving an intensity value for the plurality of RGB LEDs;

scaling an output value for the RGB LEDs; and

changing a color of at least one RGB LED of the plurality of RGB LEDs.

#### REFERENCES

The Examiner relies on the following prior art:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Wibben et al. (“Wibben”)	US 2011/0115407 A1	May 19, 2011
Bora et al. (“Bora”)	US 2015/0312995 A1	Oct. 29, 2015

#### OBJECTIONS AND REJECTIONS

The Examiner maintains, and Appellant requests our review of, the following objections and rejections:

1. the objection to the amendment to the Specification filed September 7, 2018 under 35 U.S.C. § 132(a) as introducing new matter into the disclosure;
2. the objection to the drawings under 37 C.F.R. § 1.83(a) as failing to show every feature of the claimed invention;
3. the objection to claim 14 as including an informality;
4. the rejection of claim 17 under 35 U.S.C. § 112(a) as failing to comply with the written description requirement;
5. the rejection of claims 13–16 under 35 U.S.C. § 103 as unpatentable over Wibben; and

6. the rejection of claim 17 under 35 U.S.C. § 103 as unpatentable over Wibben in view of Bora.

## OPINION

### *Objections 1–3*

The Examiner raises several objections to the September 7, 2018 amendment to the Specification, the drawings, and a claim. An appeal under 35 U.S.C. § 134(a) to the Patent Trial and Appeal Board is generally limited to the review of the merits of rejections of claims and those matters which directly relate to rejections of claims, i.e., are determinative of a rejection. 35 U.S.C. §§ 6(b) and 134(a) (2018); *In re Berger*, 279 F.3d 975, 984–985 (Fed. Cir. 2002) (citing *In re Hengehold*, 440 F.2d 1395, 1403 (CCPA 1971)); *see also* MPEP § 1201. As stated in *Hengehold*:

There are a host of various kinds of decisions an examiner makes in the examination proceeding—mostly matters of a discretionary, procedural or nonsubstantive nature—which have not been and are not now appealable to the board or to this court when they are not directly connected with the merits of issues involving rejections of claims, but traditionally have been settled by petition to the [Director].

*Hengehold*, 440 F.2d at 1403.

Within this context, we note that neither the Examiner nor Appellant assert that the objection to the drawings in this case is related in any way to any of the pending claim rejections. Although claim 16 recites “a plurality of linear regulators coupled to the plurality of RGB LEDs,” neither the Examiner nor Appellant assert that any of the rejections of claims are dependent upon whether or not the drawings show this feature. Therefore,

the Examiner's objection to the drawings under 37 C.F.R. § 1.83(a) is a petitionable matter which we do not reach in this appeal.

Similarly, neither the Examiner nor Appellant assert that the Examiner's objection to claim 14 includes an informality that relates in any way to any of the pending claim rejections. Although the Examiner states that this objection is raised because "[t]here is insufficient antecedent basis" for the limitation in question in the claim (Final Act. 7), the Examiner does not take the position that this matter creates an indefiniteness issue in claim 14. Therefore, the Examiner's objection to claim 14 is a petitionable matter which we do not reach in this appeal.

On the other hand, we note that the subject matter the Examiner deems to be new matter in the rejection of claim 17 under 35 U.S.C. § 112(a) overlaps with the subject matter the Examiner deems to be new matter in the September 7, 2018 amendment to the Specification under 35 U.S.C. § 132(a). Thus, the disposition of the new matter rejection of claim 17 directly relates to the disposition of the new matter objection to Appellant's amendment to the Specification. As such, the Examiner's objection under 35 U.S.C. §132 of the September 7, 2018 amendment to the Specification is an appealable matter which we decide in this appeal. *See* MPEP § 2163.06(II).

*Objection 1 and Rejection 4: New Matter under 35 U.S.C. §132 and 112(a)*

The Examiner objects to the September 7, 2018 amendment to the Specification under 35 U.S.C. § 132 as introducing new matter into the disclosure. The Examiner also rejects claim 17 under 35 U.S.C. § 112(a) as failing to comply with the written description requirement.

The Examiner finds that the September 7<sup>th</sup> amendment included new matter, i.e., matter not supported by the original disclosure, specifically newly added paragraphs 14–16. Final Act. 2–4.

Appellant argues principally that this amendment “actually serve[s] to narrow the [S]pecification by providing more concrete examples of concepts that were only broadly discussed initially.” Appeal Br. 3. Appellant asserts that the original Specification teaches that LED current is supplied by Q1 and that each linear regulator controls a given color LED’s current which varies the LED intensity. *Id.* Appellant contends that the Examiner fails to recognize this inherent and well-known property of LED control. *Id.* Appellant also asserts that the original Specification teaches the current regulator response may be non-linear and unique, and that Figure 2 shows, graphically, the linear to non-linear color algorithm input and output values. *Id.* Appellant contends that the example involving a purple color was added solely to provide a more concrete example of the process and results shown in Figure 2. *Id.*

Appellant’s arguments are not persuasive of reversible error in the Examiner’s § 132 new matter objection. Appellant admits that the September 7<sup>th</sup> amendment to the Specification narrows the original Specification. Amendments that do not affect the scope of the original disclosure, either through rephrasing (MPEP §2163.07(I)), correcting obvious errors (*id.* § 2163.07(II)), adding inherent disclosures (*id.* § 2163.07(a)), or adding material already properly incorporated by reference (*id.* 2163.07(b)), typically are supported by the original disclosure. On the other hand, amendments that alter the scope of an original disclosure, either by broadening or narrowing the scope, are new matter. For example, adding

species to a disclosure that originally only disclosed a genus may be new matter. Here, for example, Appellant's amendment to add an example, i.e., a generating a purple color, in the Specification is new matter because there were no examples in the original disclosure and Appellant makes no attempt to demonstrate that this example does not alter the scope of the original disclosure, e.g., an ordinary artisan would have immediately envisaged this example from the generic description and that Appellant, therefore, was in possession of this example at the time of filing. Further, we note that Appellant makes no attempt to identify any written description support in the original disclosure for any of the material included in the September 7<sup>th</sup> amendment.

Turning to the written description rejection of claim 17, the Examiner finds that the original disclosure (Specification and drawings) fails to provide written description support for claim 17's steps of "determin[ing] that a current level is below a rated current for the plurality of RGB LEDs," and "determin[ing] an amount of wavelength shift to occur as a result of transmitting the current level that is below the rated current."

Appellant states that "[c]laim 17 was written in light of the [September 7, 2018] amendments to the [S]pecification." Appeal Br. 4. Appellant argues that claim 17 is supported by the original Specification because the Examiner erred in objecting to the September 7, 2018 amendment to the Specification under 35 U.S.C. § 132 as introducing new matter into the disclosure. *Id.* Thus Appellant's argument against the Examiner's written description rejection of claim 17 is premised on the merits of the Examiner's objection to the September 7, 2018 amendment to the Specification under 35 U.S.C. § 132. Because Appellant fails to persuade



us of reversible error in the Examiner's §132 objection, we likewise are not persuaded of reversible error in the Examiner's §112(a) rejection of claim 17.

*Rejection 5: Obviousness over Wibben*

The Examiner rejects claims 13–16 under 35 U.S.C. § 103 as unpatentable over Wibben. Appellant does not argue the claims under this rejection separately. Instead, Appellant's arguments focus on the limitations of claim 13 only. In accordance with 37 C.F.R. § 41.37(c)(1)(iv) (2018), claims 14–16 stand or fall with claim 13.

We review this rejection for error based upon the issues Appellant identifies, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board's practice to require an applicant to identify the alleged error in the examiner's rejections.”). After considering the argued claims and each of Appellant's arguments, we are not persuaded of reversible error in the appealed rejection. We offer the following for emphasis only.

The Examiner finds that Wibben discloses a method as recited in claim 13 except for scaling an output value for the RGB LEDs. Final Act. 8. However, the Examiner finds that Wibben, in another embodiment, discloses scaling an output value for the RGB LEDs. *Id.* The Examiner concludes that it would have been obvious to modify Wibben's method with scaling an output value for the RGB LEDs as taught in another embodiment in order to provide more color flexibility, very good efficiencies across all color temperatures, and at relatively low cost. *Id.*

Appellant argues that Wibben discloses that the method to prevent undesired color shifts is to use a PWM control signal for the LEDs. Appeal Br. 5–7. Appellant asserts that the present invention specifically avoids the use of PWM because such signals produce noise that can adversely affect other electronic equipment operating in the vicinity. *Id.* at 6. Appellant contends that Wibben, in contrast, teaches away from the claimed method by teaching that linear control of LEDs is undesirable and creates issues with color shifting. *Id.* at 7.

Appellant’s arguments are not persuasive of reversible error in the Examiner’s obviousness rejection over Wibben because they are directed to a limitation, PWM, which is neither recited in nor excluded from claim 13. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (rejecting appellants’ nonobviousness argument as based on limitation not recited in claim); *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“Many of appellant’s arguments fail from the outset because, as the solicitor has pointed out, they are not based on limitations appearing in the claims.”). To the extent that Wibben teaches that PWM control signals may be used to provide a change of LED intensity without wavelength shifting, we note claim 13 does not exclude PWM control signals. Claim 13 broadly recites “a control signal,” but is not specific as to whether that control signal is analog (linear) or digital (PWM). Thus, Appellant’s arguments are directed to a limitation that is not recited in claim 13.

Moreover, Appellant’s arguments fail to address the Examiner’s findings that, although Wibben teaches that PWM may be used, Wibben also teaches a method using linear control of LEDs. For example, Wibben teaches control circuitry that is configured to control LEDs “to provide a

color point that is linearly controlled to approximate a non-linear target lighting behavior in the CIE 1931 color space.” Wibben Abstract and ¶ 6. Moreover, Wibben teaches that there are many well-known methods of driving an LED, that LED light intensity and color are a function of the driving current, and that an LED is best suited to be current regulated. *Id.* ¶ 38. Although Wibben does teach that PWM can be used to control LED intensity and prevent undesired color shifts, Wibben teaches that an alternative input method is to provide an analog (i.e., linear) signal that corresponds to the desired duty cycle. *Id.* ¶¶ 42, 43. Further, like Appellant, Wibben recognizes that a microprocessor may replace a resistor divider network used to control LED intensities for implementing a linear function control. Wibben ¶¶ 51, 52.

“A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (citing *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)); *see also In re Dunn*, 349 F.2d 433, 438 (CCPA 1965). In addition, our reviewing court has recognized that a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate any or all reasons to combine teachings, much less constitute teaching away from the combination. *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with

the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”).

Here, though Wibben teaches that PWM may be a preferred alternative to linear or analog LED dimming, Wibben also teaches that linear dimming can reduce the complexity of the control circuitry employed. *Id.* ¶ 56 (“Though PWM dimming provides high performance, it is also possible in alternative embodiments for the three control signals for adjusting the color temperature to control an analog dimming function to control the intensity of each channel, which changes the LED forward current.”); *see also* ¶ 60. As such, Wibben’s discussion of PWM as an alternative to linear control is not a teaching away from the use of linear control, especially when it is desired to reduce complexity of the control circuitry.

Accordingly, Appellant has not identified reversible error in the Examiner’s obviousness rejection of claim 13 over Wibben. We, therefore, sustain the Examiner’s obviousness rejection of claims 13–16.

*Rejection 6: Obviousness over Wibben and Bora*

Claim 17 depends from system claim 16, and further requires that the microprocessor further determines whether the current level is below the LEDs rated current, determines an amount of wavelength shift due to the transmitted current being below the rated current, determines a correction to the wavelength shift to reproduce the desired CIELUV color, and transmits a linear control signal including wavelength shift correction to the LEDs.

The Examiner rejects claim 17 under 35 U.S.C. § 103 as unpatentable over Wibben in view of Bora. The Examiner finds that Wibben discloses the system of claim 16, but fails to disclose the additional steps recited in claim 17. Final Act. 10–11. However, the Examiner finds that Bora discloses the

steps recited in claim 17. *Id.* at 11. The Examiner concludes that it would have been obvious to modify Wibben to perform these steps for the purpose of producing a blended light at reduced current requirements, thus avoiding catastrophic failure. *Id.* at 11–12.

Appellant argues that the Examiner creates an incongruity in the rejection of claim 17. Appeal Br. 8. Appellant asserts that, on the one hand, the Examiner admits that Wibben fails to teach transmitting a linear control signal including the wavelength shift correction. *Id.* Appellant further asserts that, on the other hand, the Examiner finds that Wibben teaches transmission of a linear control signal that is broader than the linear control signal of claim 17. *Id.* Appellant contends that if Wibben teaches a broader control signal, then it must also teach the narrower control signal. *Id.* According to Appellant, since the Examiner admits that Wibben fails to teach the linear control signal of claim 17, this admission should be applied to all the claims. *Id.*

Appellant’s arguments regarding an incongruity in the Examiner’s position is not persuasive because it mischaracterizes the Examiner’s findings and is also logically incorrect. The Examiner has not admitted that Wibben fails to teach transmitting a linear control signal. As indicated above, Wibben clearly teaches transmitting a linear control signal. However, although a species or narrower embodiment may be encompassed by a genus or broader embodiment, it does not follow that the genus or broader embodiment necessarily *discloses* the species or narrower embodiment.

Appellant next asserts that Bora discloses selecting “a color for the LEDs to show, using perhaps a color slider or fixed color selection.” Appeal Br. 8. Appellant argues that this selection is not akin to determining an

amount of wavelength shift to occur. *Id.* at 9. Appellant urges that wavelength shift is an inherent result of driving LEDs at a current below the LEDs rated current level. *Id.* Appellant contends that, unlike color, wavelength shift cannot be selected. *Id.* Instead, Appellant asserts that wavelength shift is an automatic and intrinsic feature of LEDs that must be corrected in order for a user to see the selected color. *Id.* Thus, Appellant contends that the Examiner erred in finding that Bora teaches an amount of wavelength shift to occur. *Id.*

Appellant's arguments are unpersuasive of reversible error. Initially, we again note that Wibben teaches a transmitting a linear control signal to the LEDs to approximate a non-linear target lighting behavior in the CIE 1931 color space. Wibben ¶ 6. Wibben also teaches that the linear fit of the LED light can be provided based on feedback such as the color point, temperature, or some other input. *Id.* ¶ 52. Thus, Wibben teaches that wavelength shift can be determined to adjust the linear fit of the LED light, thereby correcting for the wavelength shift. The Examiner finds that Bora, Figure 38, item 3860, and paragraphs 245–247, teach determining the wavelength shift resulting from a reduced LED driving current. Final Act. 11; Ans. 14. Specifically, Bora teaches that changes in brightness (intensity) are derived from changes in LED driver current, “but in the same proportion as that required for the selected color.” Bora ¶ 247. Bora also teaches that the color will stay constant when adjusting brightness. *Id.* Therefore, a preponderance of the evidence supports the Examiner's conclusion that a combination of Wibben and Bora would provide a linear control signal, including feedback on color point, such that this signal includes a correction

for the wavelength shift occurring due to changes in current as recited in claim 17.

Accordingly, Appellant has not identified reversible error in the Examiner's obviousness rejection of claim 17 over Wibben and Bora. We, therefore, sustain the Examiner's obviousness rejection of claim 17.

### CONCLUSION

Upon consideration of the record and for the reasons set forth above and in the Final Office Action and the Examiner's Answer, the Examiner's decision to reject claims 13–17 is *affirmed*.

More specifically,  
the objection under 35 U.S.C. § 132 to the September 7, 2018 amendment to the Specification as introducing new matter into the disclosure is *affirmed*;

the objection to the drawings under 37 C.F.R. § 1.83(a) is a petitionable matter and is not reached in this appeal;

the objection to claim 14 as including an informality is a petitionable matter and is not reached in this appeal;

the rejection of claim 17 under 35 U.S.C. § 112(a) as failing to comply with the written description requirement is *affirmed*;

the rejection of claims 13–16 under 35 U.S.C. § 103 as unpatentable over Wibben is *affirmed*; and

the rejection of claim 17 under 35 U.S.C. § 103 as unpatentable over Wibben in view of Bora is *affirmed*.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
17	112(a)	Written Description	17	
13–16	103	Wibben	13–16	
17	103	Wibben, Bora	17	
<b>Overall Outcome</b>			13–17	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED