

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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WANGS ALLIANCE CORPORATION d/b/a WAC LIGHTING CO.,  
Petitioner,

v.

PHILIPS LIGHTING NORTH AMERICA CORPORATION,  
Patent Owner.

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Case IPR2016-01453  
Patent 7,358,679 B2

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Before TREVOR M. JEFFERSON, MIRIAM L. QUINN, and GARTH D.  
BAER, *Administrative Patent Judges*.

JEFFERSON, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

Wangs Alliance Corporation d/b/a WAC Lighting Co. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1, 3–6, 11, 17–19, 26–33, 38, and 43–45 of U.S. Patent No. 7,358,679 B2 (Ex. 1001, “the ’679 patent”) pursuant to 35 U.S.C. § 311 et seq. Patent Owner, Philips Lighting North America Corporation, filed a Preliminary Response to the Petition. (Paper 6, “Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314(a). After considering the Petition, the Preliminary Response, and associated evidence, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing unpatentability of claims 1, 3–6, 11, 17–19, 26–33, 38, and 43–45.

### A. *Related Proceedings*

Petitioner reports the following pending litigation matter related to this case: *Koninklijke Philips N.V. et al. v. Wangs Alliance Corporation*, Case No. 14-cv-12298-DJC (D. Mass.). Pet. 1. IPR2015-01293 and IPR2015-01294 (previously decided), and IPR2016-01455 (filed concurrently) are also related to this case. *Id.*

### B. *The ’679 Patent*

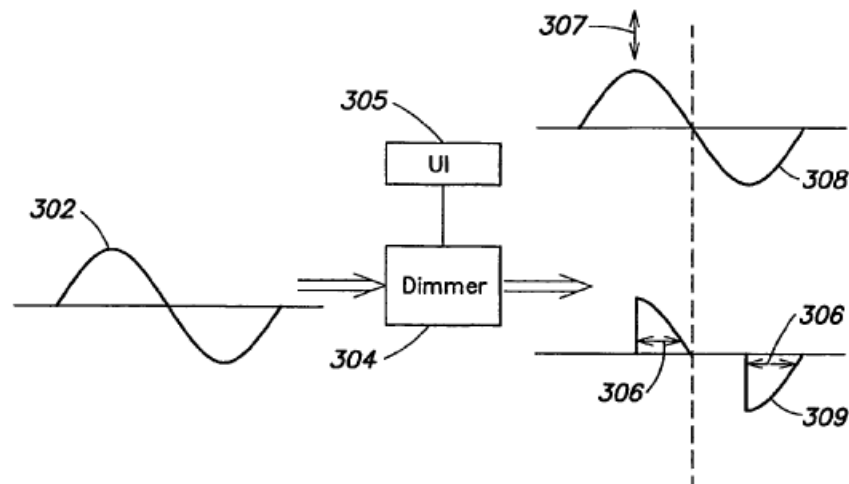
The ’679 patent discloses a method and apparatus “for providing controllable power via an A.C. power source to LED-based lighting devices having an MR16 configuration.” Ex. 1001, Abstract. The methods and apparatus of the ’679 patent’s invention “facilitate the use of LED-based light sources on A.C. power circuits that provide either a standard line

voltage or signals other than standard line voltages.” *Id.* at 2:54–57. The ’679 patent discloses that

methods and apparatus of the invention particularly facilitate the use of LED-based light sources on A.C. power circuits that are controlled by conventional dimmers (i.e., “A.C. dimmer circuits”). In one aspect, methods and apparatus of the present invention facilitate convenient substitution of LED-based light sources in lighting environments employing A.C. dimming devices and conventional light sources. In yet other aspects, methods and apparatus according to the present invention facilitate the control of one or more parameters relating to the light generated by LED-based light sources (e.g., intensity, color, color temperature, temporal characteristics, etc.) via operation of a conventional A.C. dimmer and/or other signals present on the A.C. power circuit.

*Id.* at 2:59–3:4.

Figure 1, below, shows an example operation of conventional A.C. dimming devices. *Id.* at 9:36–37.



**FIG. 1**  
(PRIOR ART)

Figure 1 “shows . . . voltage waveform 302 (e.g., representing a standard line voltage) that may provide power to one or more conventional light sources” and “a generalized A.C. dimmer 304 responsive to user interface 305.” *Id.* at 2:22–24. “[D]immer 304 is configured to output the waveform 308, in which the amplitude 307 of the dimmer output signal may be adjusted via the user interface 305.” *Id.* at 2:24–27. Dimmer 304 may also be “configured to output the waveform 309, in which the duty cycle 306 of the waveform 309 may be adjusted via the user interface 305.” *Id.* at 2:27–30.

Figure 5, below, shows one embodiment of the invention using an LED-based light source. *Id.* at 9:46–48.

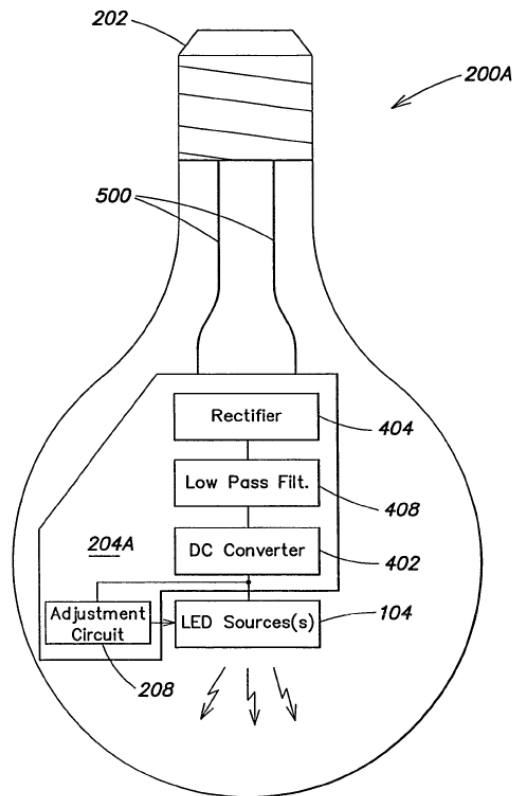
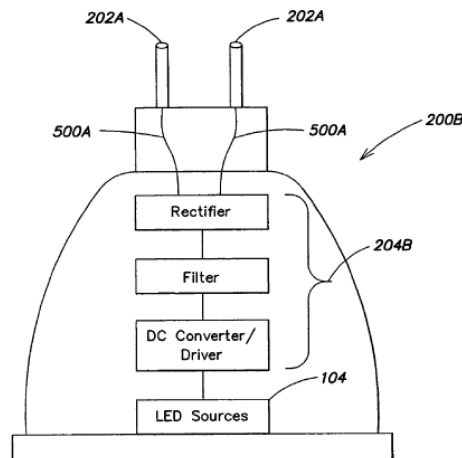


FIG. 5

Figure 5 illustrates an LED-based lighting unit 200A that is suitable for operation by a dimmer circuit. *Id.* at 15:35–38. Figure 5 shows adjustable light output that may be controlled via a dimmer, with controller 204A. *Id.* Figure 5 “includes an additional adjustment circuit 208 that further conditions a signal output from the DC converter 402. The adjustment circuit 208 in turn provides a variable drive signal to the LED-based light source 104, based on variations in the A.C. signal 500 (e.g., variations in the average voltage of the signal) in response to user operation of the dimmer.” *Id.* at 15:41–48.

The '679 patent also illustrates an LED-based lighting unit that resembles “a conventional MR16 bulb having a bi-pin base connector 202A configured to engage mechanically and electrically with a conventional MR16 socket.” *Id.* at 16:13–18. Figure 6A, below, shows an LED-based lighting unit. *Id.* at 9:53–54.



**FIG. 6A**

The “MR16 socket is connected to a source of A.C. power such that the A.C. signal 500A received by the unit 200B is a phase-angle modulated signal on the order of approximately 12 Volts A.C. (e.g., which may be derived, in turn, from a line voltage controlled via a switch and/or dimmer).” *Id.* at 16:20–24.

### *C. Illustrative Claims*

Independent claims 1 and 11 are illustrative of the challenged claims and reproduced below (Ex. 1001, 28:25–37, 29:31–45):

1. An apparatus, comprising:
  - at least one LED;
  - a housing in which the at least one LED is disposed, the housing including at least one connection to engage mechanically and electrically with a conventional MR16 socket; and
  - at least one controller coupled to the housing and the at least one LED and configured to receive first power from an alternating current (A.C.) dimmer circuit, the A.C. dimmer circuit being controlled by a user interface to vary the first power, at least one controller further configured to provide second power to the at least one LED based on the first power.
  
11. An apparatus, comprising:
  - at least one LED;
  - a housing in which the at least one LED is disposed, the housing including at least one connection to engage mechanically and electrically with a conventional MR16 socket; and
  - at least one controller coupled to the housing and the at least one LED and configured to receive a power-related signal from an alternating current (A.C.) power source that provides signals other than a standard A.C. line

voltage, the at least one controller further configured to provide power to the at least one LED based on the power-related signal,  
wherein the A.C. power source is an (A.C.) dimmer circuit.

*D. Asserted Grounds of Unpatentability*

The information presented in the Petition sets forth proposed grounds of unpatentability for the challenged claims of the '679 patent as follows (Pet. 3–4):

| <b>Reference[s]</b>                            | <b>Basis</b>    | <b>Claims Challenged</b>        |
|--|-----------------|---------------------------------|
| Hochstein <sup>1</sup> and Lys <sup>2</sup>    | 35 U.S.C. § 103 | 1, 11, 17–19, 26, 38, and 43–45 |
| Hochstein, Lys, and McMorro <sup>3</sup>       | 35 U.S.C. § 103 | 3–6                             |
| Hochstein, Lys, and TNY Datasheet <sup>4</sup> | 35 U.S.C. § 103 | 27–33                           |

II. ANALYSIS

*A. Claim Interpretation*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the

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<sup>1</sup> U.S. Patent No. 5,661,645 to Hochstein issued Aug. 26, 1997 (Ex. 1003, “Hochstein”).

<sup>2</sup> U.S. Patent No. 6,211,626 to Lys et al, issued Apr. 3, 2001 (“Lys,” Ex. 1004).

<sup>3</sup> U.S. Patent No. 4,293,796 to McMorro issued Oct. 6, 1981 (“McMorro,” Ex. 1005).

<sup>4</sup> TNY264/266-268 TinySwitch-II Family Datasheet, Power Integrations Inc. (Mar. 2001, Rev. A) (“TNY Datasheet,” Ex. 1006).

patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews). Under this standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). We presume that claim terms have their ordinary and customary meaning. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016) (“Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.”); *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question.” (internal quotation marks omitted)).

1. “*alternating current (A.C.) dimmer circuit*” and “*alternating current (A.C.) power source that provides signals other than a standard A.C. line voltage*”

The claim phrase “alternating current (A.C.) dimmer circuit” appears in independent claims 1 and appears in claim 11 as a limitation on the “alternating current (A.C.) power source that provides signals other than a standard A.C. line voltage.” Ex. 1001, 28:25–37, 29:31–45. Petitioner argues that “alternating current (A.C.) dimmer circuit” should be construed



to mean “circuit for dimming a light source that receives an A.C. signal and controls power delivered to the light source.” Pet. 13–14. Petitioner relies on the ’679 patent specification’s references to standard A.C. dimmer circuits (Ex. 1001, 1:65–2:17, Fig. 1) and extrinsic evidence regarding conventional A.C. dimmers (Ex. 1009, Fig. 5b, 5:51–6:37; Ex. 1007 ¶ 37). Pet. 13–14.

Patent Owner contends that claim construction for “A.C. dimmer circuit” is addressed in the final written decision in related case IPR2015-01294. *See Wangs Alliance Corp. d/b/a WAC Lighting Co. v. Philips Lighting No. Am. Corp*, Case IPR2015-01294 at 8–14 (PTAB Nov. 23, 2016) (Paper 48) (“’1294 FWD”) (addressing construction of claim terms in the parent application to the ’679 patent). Prelim. Resp. 1, 3–5. As in IPR2015-01294, Patent Owner argues that “every instance of “A.C. dimmer circuit” in the [’679] patent’s specification describes an A.C. output from the A.C. dimmer circuit. Prelim. Resp. 4–5 (citing Ex. 2002, 12–15).

Petitioner relies on the same arguments in the Petition in this case as the Petition in IPR2015-01294. *Compare* Pet. 13–14 *with* Ex. 2001, 21–22; Ex. 2003, 4–5, 9–10. In IPR2015-01294, we determined that that the term “A.C. dimmer circuit” means “a circuit that provides an alternating current (A.C.) dimming signal” and further determined that the “alternating current (A.C.) power source that provides signals other than a standard A.C. line voltage” requires an A.C. signal, where the signal is not a standard A.C. line voltage. ’1294 FWD at 14. We reach the same result in the present case.

Based on the specification and intrinsic evidence of the ’679 patent, and for the same reasons explained in our Final Written Decision in

IPR2015-01294, we disagree with Petitioner that the A.C. dimmer circuit requires only receipt of an A.C. signal and the provision of power to a light source. *See* Pet. 14–15, '1294 FWD at 13–14. The extrinsic testimony and references cited by Petitioner do not show that a skilled artisan would understand the '679 patent's "A.C. dimmer circuit" needs only *receive* an A.C. input but not output an A.C. signal. *See id.* Petitioner's construction, which does not require an output A.C. signal, is overly broad and removed from the context of the specification. *See In re NTP, Inc.*, 654 F.3d 1279, 1288 (Fed. Cir. 2011).

Based on the forgoing, we determine that "A.C. dimmer circuit" means "a circuit that provides an alternating current (A.C.) dimming signal." *See* '1294 FWD at 13–14.

2. "*duty cycle*" and "*varies a duty cycle*"

Petitioner argues that "duty cycle" should be construed as "the ratio of pulse duration to pulse period, expressed as a percentage." Pet. 15–16. In IPR2015-01294, we determined that "duty cycle" was "the ratio of pulse duration to pulse period." '1294 FWD at 15–16. For the same reasons explained in our Final Written Decision in IPR2015-01294, we determine, for purposes of this Decision, that "duty cycle" is "the ratio of pulse duration to pulse period."

3. "*conventional MR16 socket*"

Petitioner argues that the claim term "conventional MR16 socket" should be construed to mean "socket that accepts an MR16 bulb having a bi-pin base connector." Pet. 10–13. Based on the record before us, we determine that no express claim construction of "conventional MR16

socket” is necessary for our determination of whether to institute *inter partes* review of the challenged claims. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

*B. Grounds based on Hochstein (Ex. 1003)*

*1. Overview of Hochstein (Ex. 1003)*

Hochstein relates to a power supply for operating light emitting diode (“LED”) array traffic signals. Ex. 1003, 1:5–8. Hochstein describes using an LED traffic light with a traffic signal controller that provides a “half wave rectified a.c. line power” to dim the traffic light at night to reduce glare. *Id.* at 10:38–61. Hochstein also discloses “an apparatus for supplying regulated voltage d.c. electrical power to an LED array. The apparatus includes a rectifier having an input and an output, the rectifier being responsive to a.c. power at the input for generating rectified d.c. power at the output.” *Id.* at 3:18–23.

The Hochstein apparatus provides a boost, buck/boost or buck, switch-mode converter to a power-line operated LED array. *Id.* at 3:34–36. It includes an adaptive clamp circuit upstream of a rectifier input for preventing leakage current problems. *Id.* at 3:41–43. One embodiment of the Hochstein apparatus is depicted in Figure 5, reproduced below.

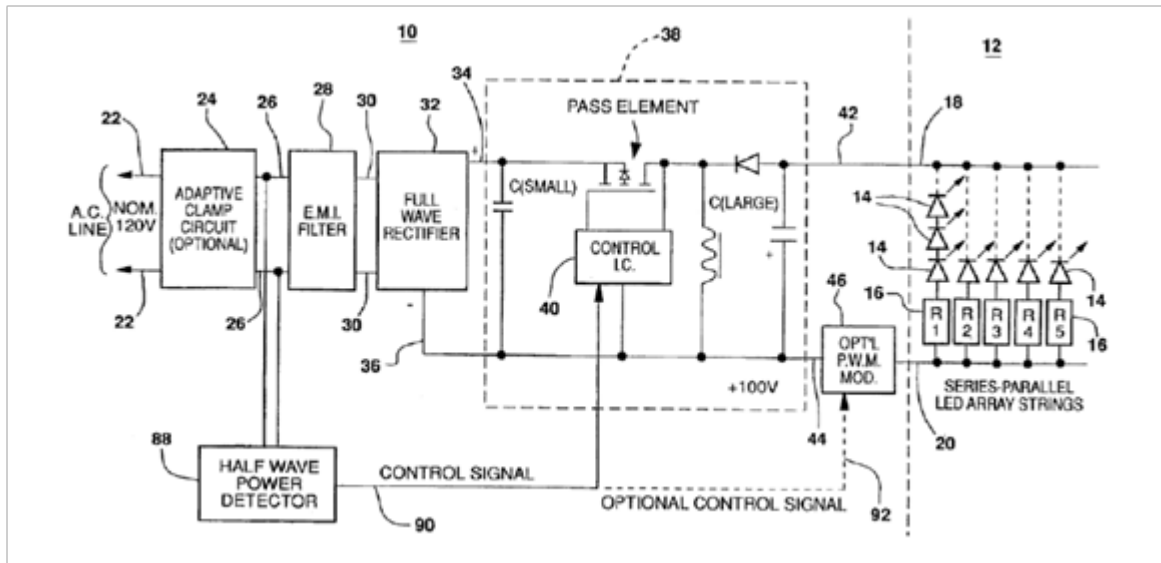


Figure 5 depicts regulated voltage, switch-mode power supply 10 with a pair of input lines 22 and an optional adaptive clamp circuit 24. *Id.* at 5:11–15. The output of adaptive clamp circuit 24 is connected to an input of an electromagnetic interference (“E.M.I.”) filter 28, which prevents conducted interference from feeding back into the power lines. *Id.* at 5:31–35. Lines 34 and 36 connect to an input of a power factor correction, buck/boost converter 38, which includes a power factor correction (“P.F.C.”) integrated circuit controller 40. *Id.* at 5:41–50. The output voltage of PFC switch-mode converter 38 is fed directly to LED array 12, or alternatively through pulse width modulated (“P.W.M.”) modulator 46. *Id.* at 5:66–6.

## 2. Analysis

Each of Petitioner’s grounds of unpatentability relies on Hochstein to teach the “alternating current (A.C.) dimmer circuit” limitation recited in independent claims 1 and 11. Pet. 16–18, 27–32, 38–39. Petitioner argues that the half-wave rectified signal in Hochstein meets this limitation by disclosing a power supply configured to dim based on a half-wave rectified

signal. *See* Pet. 13, 28–32. In the present case, Petitioner’s argument is based on the same erroneous construction for “alternating current (A.C.) dimmer circuit” that was presented in IPR2015–01294. *See* Pet. 13, 28–32; Ex. 2001, 21–22; Ex. 2003, 4–5, 9–10; ’1294 FWD at 13–14. Thus, Petitioner asserts that Hochstein teaches the A.C. dimmer limitation of the challenged claims by disclosing a power supply configured to dim based only on a half-wave rectified signal, which is a D.C. signal. *See* Pet. 13, 28–32; Ex. 1003, 10:38–61.

In IPR2015-01294, we determined that the half-wave rectified output signal in Hochstein was a D.C. signal that did not teach the “alternating current (A.C.) dimmer circuit” recited in the challenged claims. ’1294 FWD at 21–22. In the present case, we find that Petitioner has not shown that Hochstein teaches an “alternating current (A.C.) dimmer circuit” as recited in independent claims 1 and 11. We are not persuaded by Petitioner’s argument and evidence that the half-wave signal in Hochstein, which outputs a D.C. signal from an A.C. input signal is an A.C. dimmer circuit as properly construed. Pet. 28–32, 38–39; *see supra* Section II.A.1 (construing term). Based on the foregoing, Petitioner has not demonstrated a likelihood that they would prevail in showing that Hochstein and Lys teach the limitations of independent claims 1 and 11, and dependent claims 17–19, 26, 38, and 43–45.

Petitioner relies on the same arguments based on Hochstein to teach the limitations of dependent claims 3–6 (Hochstein, Lys, and McMorrow)

and dependent claims 27–33 (Hochstein, Lys, and TNY Datasheet).<sup>5</sup> Pet. 47–56, 56–65. Because each of the remaining grounds relies on the half-wave rectified signal in Hochstein to teach the A.C. dimmer limitation of claims 1 and 11, we find that Petitioner has not demonstrated a likelihood that it would prevail in showing that Hochstein, Lys, and McMorrow render claims 3–6 obvious, or that Hochstein, Lys, and TNY Datasheet render claims 27–33 obvious.

### III. CONCLUSION

For the foregoing reasons, we determine that the Petition fails to establish a reasonable likelihood of prevailing on the asserted grounds that claims 1, 11, 17–19, 26, 38, and 43–45 are unpatentable as obvious under 35 U.S.C. § 103 over Hochstein and Lys; claims 3–6 are unpatentable as obvious under 35 U.S.C. § 103 over Hochstein, Lys, and McMorrow; and claims 27–33 are unpatentable as obvious under 35 U.S.C. § 103 over Hochstein, Lys, and TNY Datasheet.

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<sup>5</sup> With respect to dependent claims 3–6, Petitioner asserts that like Hochstein, McMorrow provides a half-wave rectified signal. Pet. 29–30, 36–37. Petitioner does not expressly rely on McMorrow to teach the limitations of claim 1 from which claims 3–6 depend. *Id.* We find that the half-wave rectified signal identified in McMorrow, like the D.C. signal in Hochstein, is not an A.C. signal as recited in claim 3–6. *See* Ex. 2003, 8–9; Pet 49.

IV. ORDER

Accordingly, it is

ORDERED that the petition is denied as to all challenged claims and no trial is instituted.

IPR2016-01453  
Patent 7,358,679 B2

PETITIONER:

David Radulescu  
david@radip.com

Angela Chao  
angela@radip.com

PATENT OWNER:

C. Brandon Rash  
brandon.rash@finnegan.com

Kenie Ho  
kenie.ho@finnegan.com