

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

In re: Bruce Wesson)
) Petition for *Inter Partes* Review
Patent No.: 6,786,625)
) **Attorney Docket No.:** 2180-02
Issued: September 7, 2004)
) **Customer No.:** 20306
For: LED LIGHT MODULE)
 FOR VEHICLES) **Real Party in Interest:**
) OSRAM SYLVANIA Inc.

**EXPERT DECLARATION OF PETER W. SHACKLE, Ph.D., FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 6,786,625**

I, Peter W. Shackle, Ph.D., declare and state as follows:

I. INTRODUCTION

1. I have been retained as an expert witness for the *inter partes* review (“IPR”) of U.S. Patent No. 6,786,625 (“the ’625 patent”; OSIX 1001¹) filed by OSRAM SYLVANIA Inc. (“OSI”). More specifically, I have been asked to render opinions for this IPR as to the patentability of claims 30-31 (“the Challenged Claims”) of the ’625 patent.

II. QUALIFICATIONS

2. I hold a bachelor’s degree in physics from the University of Birmingham (United Kingdom) and a Ph.D. in physics from the University of Cambridge (United Kingdom).

3. I have over twenty years’ experience in the field of lighting electronics, with particular emphasis on light emitting diode (“LED”) drivers and electronic ballasts. I am currently the President of Photalume, a consulting company I founded in 2012. Before that, I was Director of Power Supply Products at Light-Based Technologies, and I also served as Chief Technology Officer for Lightech Electronics, Inc. Additionally, I held vice president positions at Fulham

¹ Exhibits OSIX 1001-27 refer to exhibits cited in OSI’s Petition for *Inter Partes* Review of the ’625 patent.

Co, Inc., Universal Lighting Technologies, and Robertson Worldwide.

4. I am an elected senior life member of the Institute of Electrical and Electronics Engineers, and I am a member of the Illuminating Engineering Society.

5. I am a named inventor of fifty-five U.S. patents, and I have three patent applications pending before the U.S. Patent and Trademark Office. I have also authored eight publications in refereed journals and nine publications in trade journals, the most recent of which pertains to LED technology. My *curriculum vitae* is attached as Exhibit A.

III. PRIOR TESTIMONY

6. In the past six years, I have not testified as an expert at trial or by deposition.

IV. COMPENSATION

7. I am being compensated for the time that I spend consulting on this case at the rate of \$350.00 per hour. My compensation is not dependent upon the outcome of this IPR.

V. MATERIALS CONSIDERED

8. In developing my opinions for this IPR, I reviewed, among other things, the '625 patent, its prosecution history, numerous prior art references in the relevant field of automotive lamps and lighting, and materials cited herein.

VI. SUMMARY OF OPINIONS

9. My opinions related to the issue of patentability of the '625 patent are based upon the claim constructions set forth in OSI's Petition for *inter partes* review of the '625 Patent ("the Petition"). To the extent that a claim construction is not provided in the Petition for a particular claim limitation or element, I used the ordinary and customary meaning of the word(s), as would be understood by a person of ordinary skill in the art in the context of the field of the invention at the time of the invention, to construe such a claim term or element.

10. For the reasons explained below, the Challenged Claims are unpatentable as anticipated by and/or obvious over the prior art.

11. The Challenged Claims are anticipated by French Patent Application Publication No. 2 576 719 to Laforest et al. ("Laforest," OSIX 1017; OSIX 1018), which has a publication date of January 25, 1985. Laforest, entitled "LED connector support and motor vehicle dashboard using the same," identifies Jaeger as the applicant and lists Jean-Louis Laforest and Jean-Philippe Vanpe as inventors.

12. In the alternative, the Challenged Claims are obvious over Laforest.

13. The Challenged Claims are anticipated under 35 U.S.C. § 102(e) by U.S. Patent Application Publication No. 2003/0102820 to Sivacumarran ("Sivacumarran," OSIX 1018), which was filed on December 12, 2001, and

published on June 5, 2003. Sivacumarran, entitled “Lamps,” lists Karthigesu Sivacumarran as the inventor.

14. In the alternative, the Challenged Claims are obvious over Sivacumarran.

15. Claim 30 is anticipated by U.S. Patent No. 6,252,350 to Alvarez (“Alvarez,” OSIX 1020), which was filed on July 31, 1998, and issued on June 26, 2001. Alvarez, which is entitled “Surface Mounted LED Lamp,” identifies Andres Alvarez as the inventor.

16. In the alternative, claim 30 is obvious over Alvarez.

17. Claim 30 is anticipated by U.S. Patent No. 6,357,902 to Horowitz (“Horowitz,” OSIX 1021), which was filed on September 25, 2000, and issued on March 19, 2002. Horowitz, which is entitled “After Market LED Taillight Bulb,” identifies Brian Horowitz as the inventor.

18. In the alternative, claim 30 is also obvious over Horowitz.

19. I reserve the right to amend and/or supplement this declaration in light of additional relevant evidence, arguments, or testimony presented, for example, during discovery for this IPR.

VII. LEGAL STANDARDS

20. I understand that a patent claim can be unpatentable under the United States patent laws for various reasons, including, for example, anticipation or

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