

Filed on behalf of: Nichia Corporation

Paper \_\_\_\_\_

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Date filed: September 18, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VIZIO, INC.,  
Petitioner,

v.

NICHIA CORPORATION,  
Patent Owner.

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Case IPR2018-00386  
Patent 9,490,411

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**DECLARATION OF DR. E. FRED SCHUBERT**

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## **I. INTRODUCTION**

1. My name is E. Fred Schubert, and I have been retained by counsel for Patent Owner, Nichia Corporation (“Nichia”), to serve as an expert witness in the above-captioned proceeding based on a Petition for *Inter Partes* Review (IPR) filed by VIZIO, Inc. (the “Vizio Petition” or the “Petition”), which challenges certain claims in Nichia’s U.S. Patent No. 9,490,411 (the “‘411 Patent”).

2. I understand that this declaration will be submitted in support of the Patent Owner’s Response in the IPR.

3. The facts and opinions expressed herein are true and accurate to the best of my knowledge and understanding based on the information I have reviewed to date.

## **II. QUALIFICATIONS**

4. My *curriculum vitae* (CV) detailing my educational background and professional experience is enclosed as Appendix A. My CV includes a list of all publications I have authored, including all publications from the previous ten years.

5. I am currently a Full Professor in the Department of Electrical, Computer, and Systems Engineering at Rensselaer Polytechnic Institute (RPI) in Troy, New York.

6. I received a Master's Degree in Electrical Engineering from the University of Stuttgart, Germany, in 1981. I received a Ph.D. degree in Electrical Engineering from the University of Stuttgart, Germany, in 1986. Subsequent to my education, starting in 1985, I worked in industry at AT&T Bell Laboratories in Holmdel and Murray Hill, New Jersey, for ten years. In 1995, I joined academia. My first position was at Boston University (Boston, MA), where I worked as a full professor for seven years. In 2002, I joined RPI as a distinguished professor, the Wellfleet Senior Constellation Professor and Head of the Future Chips Constellation with appointments in the Department for Electrical, Computer, and Systems Engineering and the Department for Physics, Applied Physics and Astronomy. I am the founding Director of the Smart Lighting Engineering Research Center that is funded by the U.S. National Science Foundation at a volume of \$40 million over 10 years.

7. I am named as co-inventor in more than 30 U.S. patents and have co-authored more than 300 publications. I authored the books "*Doping in III-V Semiconductors*" (1993), "*Delta Doping of Semiconductors*" (1996), and the first, second, and third editions of "*Light-Emitting Diodes*" (2003, 2006, and 2018); the latter book is known as a standard textbook in the field of LEDs, and the book has been translated into Russian, Japanese and Korean. My publications have been

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