

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

**Trial No.:** IPR 2015-01653  
**In re:** U.S. Patent No. RE43,106  
**Patent Owner:** Toshiba Samsung Storage Technology Korea Corporation  
**Petitioners:** LG Electronics, Inc., and LG Electronics U.S.A., Inc.  
**Inventors:** Jang-Hoon Yoo and Chul-Woo Lee

For: OPTICAL PICKUP COMPATIBLE WITH A DIGITAL VERSATILE DISK  
AND A RECORDABLE COMPACT DISK USING A HOLOGRAPHIC  
RING LENS

\* \* \* \* \*

**DECLARATION OF MICHAEL LEBBY**

I, Michael Leby, hereby declare as follows:

1. My name is Michael Leby. I reside at 680 Mission St, Apt 24F, San Francisco, CA 94105, and I currently work for the University of Southern California (USC) and Lightwave Logic (LWLG), and consult for Oculi LLC.

2. I have been retained by Toshiba Samsung Storage Technology Korea Corporation (“TSST” or “Patent Owner”). I understand that TSST is the owner of patents involved in several *Inter Partes* Reviews (IPRs). This declaration relates to U.S. Patent No. RE43,106 (the ‘106 patent) and the IPR with which it is involved, which I understand to be IPR2015-01653.

3. I am currently the Director of Corporate Relations at USC, CEO and CTO of Oculi LLC, and Director at LWLG. My curriculum vitae (CV) is attached at the rear of this declaration. My educational and professional background is summarized below.

4. To summarize my educational and academic background, I attended the University of Bradford in the United Kingdom (UK), where I earned a Bachelor's of Engineering (B. Eng.), with Honors. Thereafter, I received an MBA and Ph.D. from the University of Bradford. In 2004, I received a Doctor of Engineering from the University of Bradford, which is a higher doctorate awarded on technical contribution to the field. I received a citation, entitled "Technical Contributions to Optoelectronics," in connection Doctor of Engineering degree.

5. After receiving my B. Eng. degree, I worked as a Researcher at AT&T Bell Labs in their Photonics Research Dept. I left AT&T in 1989 and became the R&D Manager at Motorola. After leaving Motorola in 1998, I joined TE Connectivity where I was the Director of Technology/BD (Fiber Optics). I left TE Connectivity in 1999 to take a Director of Business Development position at Intel Capital. I was one of the co-founders of Intel's photonics division in the year 2000. I left Intel to become a founder of Ignis Optics, a venture-backed start-up, where I served as President and CEO from 2001-2003. From 2003-2005, I served as the VP of Technology and Business Development at OCLARO. In 2005, I

joined the Optoelectronic Industry Development Association (OIDA), where I held Executive Director, President, and CEO positions. OIDA was acquired by OSA in 2010, and I became the General Manager and CTO at Translucent, Inc., where I worked until 2013. In 2013, I became a full Professor of Optoelectronics at Glyndwr University. I also served as Chair of Optoelectronics at Glyndwr University. From 2013-2015, I served as President and CEO of OneChip Photonics Corporation. I have held my position at Oculi LLC since 2003, and I have held my positions at USC and LWLG since 2015.

6. I have received a number of awards during my professional career. For example, I was recognized professionally as a Fellow of IEEE (2005) and OSA (2007) in view of my technical contributions to the field of optoelectronics. I served on the IEEE CPMT Board of Governors from 1998-2002. I was cited by the USPTO as being among the 75 most prolific inventors in the United States from 1988-1997, and I was the most prolific inventor at Motorola in its 70+ year history.

7. I have authored or co-authored more than 60 publications, and I am listed as an inventor or co-inventor on over 450 issued/published patents, including over 200 issued utility patents issued by the USPTO. My patents cover a wide variety of areas including, for example, fiber optic communications, devices, transceivers, VCSELs, VCSEL packaging, passive fiber alignment, low cost

photonics and electronics manufacturing, design of refractive, diffractive, and holographic optics for various communications and consumer applications, etc.

8. My demonstrated commercial technological expertise encompasses a variety of areas including, for example, fiber optic communications, materials, packaging and alignment, optoelectronics (LEDs, laser diodes), optical components, photonics (PICs, OEICs, silicon photonics, polarizers, MEMS, optical switches, solar cells, gratings, Mux/Demux), semiconductors (CMOS, SOI, SoS), materials (GaN, InGaN, GaAs, SiGe, InP, SiC, REO, Sapphire), fabrication, (Silicon, GaAs, InP) manufacturing (III-V, Silicon, SiGe), epitaxial growth (MOCVD, MBE, CVD), and optics/microelectronics packaging/assembly, etc.

9. I am being compensated for my time at my usual and customary rate. I have no personal or financial stake or interest in the outcome of this *Inter Partes* Review, or any related action. My compensation in no way depends upon my testimony or the outcome of this *Inter Partes Review*, or any related action.

10. I have reviewed and am familiar with at least the following documents, and any other document mentioned herein: the '106 patent (Ex. 1001); U.S. Patent No. 5,696,750 to Katayama (Katayama, Ex. 1002); and the Declaration of Masud Mansuripur (Ex. 1012). It is my understanding that the '106 patent has an alleged effective filing date as early as March 28, 1997.

### My Understanding of the Law Regarding Patent Validity

11. The following is what I have been told about the law regarding validity of a patent, and it represents my understanding of the same. It is my understanding that LG Electronics, Inc. and LG Electronics U.S.A., Inc. (who I understand are the “Petitioner” in this IPR proceeding) have the burden of proving invalidity in an IPR proceeding by a preponderance of the evidence. As explained below, it is my opinion that the challenged claims of the ‘106 patent are not invalid under this standard.

12. Anticipation. It is my understanding that a claim of a patent is “anticipated” only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. If even a single element is missing, the claim is not anticipated. It is my understanding that a feature is “inherent” in a reference only if that feature is necessarily present in the reference – not merely probably or possibly present. Furthermore, it is my understanding that in order to anticipate, a prior art reference must not only disclose all elements of the claim, but must also disclose those elements as arranged as in the claim. It is my understanding that there are no anticipation rejections at issue here.

13. Obviousness. It is my understanding that a patent claim is invalid for “obviousness” if the claimed invention as a whole would have been obvious to one

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