UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASML NETHERLANDS B.V., EXCELITAS TECHNOLOGIES CORP., AND QIOPTIQ PHOTONICS GMBH & CO. KG,
Petitioners

v.

ENERGETIQ TECHNOLOGY, INC.,
Patent Owner.

Case IPR 2016-00575

DECLARATION OF HOWARD MILCHBERG, PH.D. REGARDING U.S. PATENT NO. 7,786,455 CLAIMS 12-14

ASML 1203

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I, Howard Milchberg, Ph.D., declare as follows:

1. My name is Howard Milchberg.

I. BACKGROUND

2. I am a Professor of Physics and Electrical and Computer Engineering at the University of Maryland in College Park, Maryland.

3. I received a B.Eng. in Engineering Physics from McMaster University in Hamilton, Ontario, Canada in 1979. I received a Ph.D. in Astrophysical Sciences from Princeton University in Princeton, New Jersey in 1985.

4. After receiving my doctorate, I worked at AT&T Bell Laboratories in as a postdoc from 1985 to 1987.

5. In 1988, I was appointed Assistant Professor in the Department of Electrical and Computer Engineering at the University of Maryland. In 1993, I became Associate Professor in this same department, and in 1995, I became Professor in this department. I am currently Professor in the Departments of Physics and Electrical and Computer Engineering.

6. Since joining the faculty of the University of Maryland in 1988, I have been engaged in research in: nonlinear optics; laser and optical physics; the interaction of intense electromagnetic fields with atoms, ions, gases, solids, and plasmas; the generation and application of coherent and incoherent short wavelength radiation; and laser-based acceleration of charged particles. My

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research has been featured in Physical Review Letters, Optics Letters, Optics Express, Physical Review X; Optica; Physics of Plasmas; Applied Physics Letters, and the Journal of the Optical Society of America, and has received popular press coverage in the Washington Post, Le Monde, Science News, Physics Today, Nature, Smithsonian Magazine, and Gizmodo, among others.

7. I taught/teach courses in electromagnetic theory, quantum mechanics, laser science, and laser-plasma interactions among others. I have directed the dissertations of 17 individuals who received the Ph.D. degree in Physics or Electrical and Computer Engineering.

8. I have authored or co-authored over 120 peer-reviewed academic publications in the fields of physics and applied physics.

9. From 1979 through 1984, I was a NSERC Postgraduate Fellow through the National Research Council Canada. From 1988 through 1993, I was a National Science Foundation Presidential Young Investigator. I am fellow of the American Physical Society and the Optical Society of America. In 2005, I received the University of Maryland Distinguished Scholar-Teacher award. In 2005, I also received the American Physical Society Award for Excellence in Plasma Physics Research.

10. I am a named inventor on one United States patent and have patent applications pending both in the United States and abroad.

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