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 IPR2016-00585

DECLARATION OF J. GARY EDEN, PH.D.
REGARDING U.S. PATENT NO. 7,435,982
CLAIMS 52, 75-77, AND 81

ASML 1503

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

TABLE OF CONTENTS

Page

I. BACKGROUND 1
II. LEGAL PRINCIPLES 6
III. PERSON OF ORDINARY SKILL IN THE ART 8
IV. OVERVIEW OF THE '982 PATENT 8
A. Summary Of The Prosecution History 10
V. CLAIM CONSTRUCTION 11
A. "Light source" 11
B. "High brightness light" 13
C. "Light bulb" 16
VI. Laser Sustained Plasma Light Sources Were Known Long Before the Priority Date of the '982 Patent 16
VII. GROUNDS FOR FINDING THE CHALLENGED CLAIMS INVALID 18
A. Claims From Which The Challenged Claims Depend 19
1. *Claim 37 is Anticipated by Gärtner* 19
2. *Claim 51 is Obvious over Gärtner* 23
B. Ground 1: Claims 75-77 and 81 Are Obvious Over Gärtner 26
1. *Claim 75* 26
2. *Claim 76 - "wherein an inner surface of the quartz chamber is reflective"* 31
3. *Claim 77 - "wherein the plasma is a high temperature plasma between about 10,000 K and about 20,000 K"* 32
4. *Claim 81 - "wherein the window comprises sapphire or quartz"* 33
C. Ground 2: Claim 52 Is Obvious Over Gärtner In View of Sato 33
1. *Claim 52 - "wherein the chamber is a glass bulb"* 34
D. Ground 3: Claim 75 Is Anticipated by Sato 38
1. *Claim 75* 39
E. Ground 4: Claims 76, 77, and 81 are Obvious Over Sato In View of Gärtner 42

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

1. *Claim 76 - "wherein an inner surface of the quartz chamber is reflective"* 42

2. *Claim 77 - "wherein the plasma is a high temperature plasma between about 10,000 K and about 20,000 K"* 44

3. *Claim 81 - "wherein the window comprises sapphire or quartz"* 45

VIII. RESPONSE TO ARGUMENTS RAISED BY PATENT OWNER IN ITS PRELIMINARY INJUNCTION MOTION 47

A. Patent Owner's Arguments Regarding "High Brightness Light" 47

B. Patent Owner's Arguments Regarding Objective Indicia of Non-Obviousness 52

IX. AVAILABILITY FOR CROSS-EXAMINATION 53

X. RIGHT TO SUPPLEMENT 53

XI. JURAT 54

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

I, J. Gary Eden, Ph.D., declare as follows:

1. My name is J. Gary Eden.

I. BACKGROUND

2. I am the Gilmore Family Professor of Electrical and Computer Engineering and Director of the Laboratory for Optical Physics and Engineering at the University of Illinois in Urbana, Illinois.

3. I received a B.S. in Electrical Engineering (High Honors) from the University of Maryland, College Park in 1972 and an M.S. and Ph.D. in Electrical Engineering from the University of Illinois in 1973 and 1976, respectively.

4. After receiving my doctorate, I served as a National Research Council Postdoctoral Research Associate at the United States Naval Research Laboratory ("NRL"), Optical Sciences Division, in Washington, DC from 1975 to 1976. As a research physicist in the Laser Physics Branch (Optical Sciences Division) from 1976 to 1979, I made several contributions to the visible and ultraviolet lasers and laser spectroscopy field, including the co-discovery of the KrCl rare gas-halide excimer laser and the proton beam pumped laser (Ar-N2, XeF). In 1979, I received a Research Publication Award for this work at the NRL.

5. In 1979, I was appointed assistant professor in the Department of Electrical and Computer Engineering at the University of Illinois. In 1981, I became associate professor in this same department, and in 1983, I became

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

professor in this department. In 1985, I was named the Director of the Laboratory for Optical Physics and Engineering, and in 2007, I was named the Gilmore Family Professor of Electrical and Computer Engineering. I continue to hold both positions today. In addition, I am also Research Professor in the Coordinated Science Laboratory and the Micro and Nanotechnology Laboratory, and I hold academic appointments at the University of Illinois in the Departments of Materials Science and Engineering, Bioengineering, and Nuclear, Plasma, and Radiological Engineering.

6. Since joining the faculty of the University of Illinois in 1979, I have been engaged in research in atomic, molecular and ultrafast laser spectroscopy, the discovery and development of visible and ultraviolet lasers, and the science and technology of microcavity plasma devices. My research has been featured in Laser Focus, Photonics Spectra, Electronics Weekly (UK), the Bulletin of the Materials Research Society, Microwaves, Optical Spectra, Electro-Optical Systems Design, Optics and Laser Technology, Electronics, Optics News, Lasers and Optronics, IEEE Potentials, IEEE Spectrum, and IEEE Circuits and Devices. My work was also highlighted in the National Academy of Sciences report Plasma 2010, published in 2007.

7. I have made several major contributions to the field of laser physics, plasma physics, and atomic and molecular physics. I co-invented a new form of

DOCKET ALARM
Find authenticated court documents without watermarks at docketalarm.com.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.