

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

---

Cases IPR2015-1277  
U.S. Patent No. 8,309,943

---

**PATENT OWNER'S RESPONSE**  
**UNDER 37 C.F.R. § 42.120**

TABLE OF CONTENTS

|             |  |    |
|-------------|--|----|
| <b>I.</b>   | <b>INTRODUCTION</b> .....  | 1  |
| <b>II.</b>  | <b>STATE OF THE ART</b> .....  | 2  |
|             | <b>A. Arc Lamp Technology</b> .....  | 2  |
|             | <b>B. Energetiq’s Patented Laser Driven Light Source</b> .....   | 3  |
| <b>III.</b> | <b>CLAIM INTERPRETATION</b> .....  | 4  |
|             | <b>A. “Light source”</b> .....   | 5  |
|             | <b>B. “Blocker”</b> .....  | 7  |
| <b>IV.</b>  | <b>THE DEFINITION OF AN ORDINARY ARTISAN IN THE FIELD</b> ..   | 13 |
|             | <b>A. Active Workers in the Field and the Inventor</b> .....   | 14 |
|             | <b>B. Problems in the Art, Prior Art Solutions, Rapidity with Which Innovations are Made, and Sophistication of the Technology</b> ..... | 14 |
|             | <b>C. Petitioners Provides <i>No Factual Support</i> for their Definition and Do Not Rely on any of the Relevant Factors</b> .....       | 15 |
| <b>V.</b>   | <b>THE CHALLENGED CLAIMS WOULD NOT HAVE BEEN OBVIOUS OVER GÄRTNER OR OVER THE COMBINATION OF GÄRTNER AND IKEUCHI</b> .....               | 16 |
| <b>VI.</b>  | <b>GROUND 1: THE CHALLENGED CLAIMS WOULD NOT HAVE BEEN OBVIOUSNESS UNDER § 103 OVER GÄRTNER</b> .....                                    | 16 |
|             | <b>A. Overview of Gärtner</b> .....  | 17 |
|             | <b>B. Gärtner Does Not Disclose or Render Obvious the Claimed “Blocker”</b> .....  | 17 |
|             | <b>1. Elements cited by Petitioners are not blockers because they are on the interior of the chamber</b> .....                           | 18 |
|             | <b>a. Figure 1 of Gärtner does not disclose the claimed blocker</b> .....  | 18 |
|             | <b>b. Figure 3 of Gärtner does not disclose the claimed blocker</b> .....  | 20 |

|              |   |    |
|--------------|---|----|
| c.           | <b>Figure 4 of Gärtner does not disclose the claimed blocker</b>  | 21 |
| <b>VII.</b>  | <b>GROUND 2: THE CHALLENGED CLAIMS WOULD NOT HAVE BEEN OBVIOUSNESS UNDER § 103 OVER GÄRTNER AND IKEUCHI</b>   | 23 |
| A.           | <b>Overview of Ikeuchi</b>  | 23 |
| B.           | <b>The Modification Proposed by Petitioners Would Have Rendered Gärtner’s System Inoperable for its Intended Purpose</b>  | 24 |
| C.           | <b>Petitioners Fail To Demonstrate <i>Why</i> An Ordinary Artisan Would Have Combined Gärtner with Ikeuchi</b>  | 29 |
| 1.           | <b>Petitioners do not demonstrate why no one modified Gärtner to add a blocker, despite their long availability at least as early as Gärtner</b>                              | 29 |
| a.           | <b>Suitable blockers existed long before the ’943 priority date</b>   | 29 |
| b.           | <b>The years-long availability of blockers before the invention, coupled with the teachings away from the use of such, shows that the invention was not obvious when made</b> | 30 |
| 2.           | <b>Petitioners fail to demonstrate that an ordinary artisan would have been motivated to modify Gärtner and Ikeuchi</b>   | 31 |
| <b>VIII.</b> | <b>CONCLUSION</b>   | 32 |

## I. INTRODUCTION

This case is about a light source that is so much brighter than what preceded it, that it has essentially replaced the arc lamps previously used in semiconductor wafer inspection, lithography, and metrology tools.

The challenged claims are directed to a light source comprising: a chamber; an ignition source for ionizing a medium within the chamber; a laser for providing energy to the ionized medium within the chamber to produce a light; *and a blocker suspended along a path the energy travels and blocking the energy provided to the ionized medium that is not absorbed by the ionized medium.*

Petitioners allege that the challenged claims are rendered obvious based on an incomplete system described in a 20 year old patent application (Gärtner). However, Gärtner fails to include or render obvious elements of the challenged claims, namely the claimed blocker, which, properly construed, must be outside the chamber.

Energetiq did not file a preliminary response in this proceeding. Because Petitioners have not met their burden of proof, the claims must be confirmed.<sup>1</sup>

---

<sup>1</sup> This response is supported by the Declaration of Dr. Donald K. Smith.

## II. STATE OF THE ART

### A. Arc Lamp Technology

For at least a decade prior to the invention, the semiconductor industry used xenon or mercury arc lamps to produce a light for use in wafer inspection and metrology systems. (See Smith Declaration at ¶ 8 (Ex. 2016); '943 patent (Ex. 1001), 1:31-33 (“The state of the art in, for example, wafer inspection systems involves the use of xenon or mercury arc lamps to produce light.”).)

Arc lamps use an anode and cathode to provide an electrical discharge to a gas within the lamp that excites the gas, causing it to emit light. (See '943 patent (Ex. 1001), 1:20-35.) However, they suffer from a number of shortcomings that constrain the accuracy and efficiency of the equipment that uses them. These problems include instability of the arc, undesirable time to failure, and limits on how bright such sources can get (the spectral brightness of arc lamps is limited by the maximum current density—if too high, it would melt the arc lamps' electrodes). (See, e.g., '943 patent (Ex. 1001), 1:38-47; Smith Decl. at ¶ 8 (Ex. 2016).)

Over time, the industry demanded improvements in the brightness level of light sources beyond that which could be met by traditional xenon and mercury arc lamps (ordinarily in the range of about 1 to 9 mW/mm<sup>2</sup>-sr-nm). (Smith Decl. at

# 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.