

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

APPLE INC.,  
Petitioner,

v.

COREPHOTONICS, LTD.,  
Patent Owner.

---

Case No. IPR2020-00905, IPR2020-00906  
U.S. Patent No. 10,225,479

---

DECLARATION OF DUNCAN MOORE, Ph.D.  
PURSUANT TO 37 C.F.R. § 1.68

TABLE OF CONTENTS

I.	BACKGROUND .....	1
II.	SUMMARY OF OPINIONS .....	2
III.	EDUCATIONAL AND EMPLOYMENT BACKGROUND .....	4
IV.	LEVEL OF ORDINARY SKILL IN THE ART (POSITA) .....	7
V.	RELEVANT LEGAL STANDARDS FOR OBVIOUSNESS.....	8
VI.	OVERVIEW OF THE '479 PATENT .....	11
VII.	PRIOR ART REFERENCES .....	16
A.	Parulski.....	16
B.	Kawamura .....	21
C.	Ogata .....	35
VIII.	OBVIOUSNESS.....	41
A.	A POSITA Would Not Have Scaled Kawamura to Use in Parulski .....	41
1.	Scaling Lens Designs by a Large Factor Is Not Done in Practice .....	41
2.	A POSITA Selecting a Lens for Parulski Would Have Used an Aspheric Design with Plastic Elements .....	47
3.	A POSITA Selecting a Lens for Parulski Would Have Used a Design with an Aperture Stop Near the First Lens Element....	52
4.	A POSITA Selecting a Lens for Parulski Would Not Have Used a Lens with F-Number of 4 .....	56

Case No. IPR2020-00905  
U.S. Patent No. 10,225,479

B.	A POSITA Would Not Have Scaled Ogata to Use in Parulski.....	58
IX.	DECLARATION.....	60

## I. BACKGROUND

1. I have been retained as a technical expert by Patent Owner Corephotonics Ltd. (“Patent Owner” or “Corephotonics”) in this proceeding. Corephotonics has asked me to provide my expert opinions concerning certain technical aspects of imaging lenses and imaging lens design as they relate to the Petitioner Apple Inc.’s petition for inter partes review of U.S. Patent 10,225,479 (“’479 patent”) in Case No. IPR2020-00906 (“-00906 IPR”) and the accompanying Declaration of José Sasián. In particular, I have been asked to respond to Dr. Sasián’s opinions set forth in his declaration, Ex. 1021, that it would have been obvious to scale the Kawamura and Ogata prior art lens designs to a much smaller size for use with a 1/2.5” image sensor.

2. The statements in this declaration summarize my opinions on these matters based on my over 40 years of experience in the design and development of imaging lenses for optical systems, my education, knowledge, skills, and my review and analysis of the materials referenced herein.

3. I am being compensated for my work in this matter at the rate of \$425 per hour. I am also being reimbursed for reasonable and customary expenses

associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the substance of my testimony

## II. SUMMARY OF OPINIONS

4. In the preparation of this declaration, I have reviewed:

- The '479 patent (Ex. 1001)
- Prosecution history of the '479 patent (Ex. 1002)
- The declaration of Dr. Fredo Durand (Ex. 1003)
- The curriculum vitae of Dr. Fredo Durand (Ex. 1004)
- U.S. Patent No. 7,859,588 (“Parulski”) (Ex. 1005)
- Japanese Patent Application Publication No. S58-62609 (“Kawamura”) (Ex. 1012)
- Warren J. Smith, Modern Lens Design (1992) (Ex. 1020)
- The declaration of Dr. José Sasián (Ex. 1021)
- ZEMAX Optical Design Program User’s Manual (Ex. 1022)
- U.S. Patent No. 5,546,236 (“Ogata”) (Ex. 1026)
- Specification sheet for Sony ICX629 image sensor (“ICX629”) (Ex. 1029)
- Specification sheet for Sony ICX624 image sensor (“ICX624”) (Ex. 1030)

# 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.