

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

---

DECLARATION OF JOHN C. HART, 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 .....	5
IV.	LEVEL OF ORDINARY SKILL IN THE ART (POSITA) .....	9
V.	RELEVANT LEGAL STANDARDS FOR OBVIOUSNESS...	10
VI.	OVERVIEW OF THE '479 PATENT .....	14
VII.	CLAIM CONSTRUCTION .....	18
A.	“fused image with a point of view (POV) of the Wide camera” (claims 1 and 23) .....	18
B.	“to find translations between matching points in the images to calculate depth information and to create a fused image suited for portrait photos” (claim 19) .....	23
VIII.	PRIOR ART REFERENCES .....	25
A.	Parulski .....	25
IX.	OBVIOUSNESS—CLAIMS 1 AND 23 (AND DEPENDENTS) .....	38
A.	A POSITA Would Not Have Found Obvious the Combination of Parulski and Konno (Ground 1, -00905 IPR) .....	38
B.	A POSITA Would Not Have Found Obvious the Combination of Parulski, Konno and Szeliski (Ground 2, -00905 IPR) .....	44
C.	A POSITA Would Not Have Found Obvious the Combination of Parulski, Konno, Szeliski and Segall (Ground 3, -00905 IPR) .....	45

D.	A POSITA Would Not Have Found Obvious the Combination of Parulski, Konno and Stein (Ground 4, -00905 IPR) .....	46
X.	OBVIOUSNESS—CLAIM 19 (AND DEPENDENTS).....	48
A.	Claims 19 and 20 Are Not Obvious Over the Combination of Parulski, Ogata, Kawamura, and Soga (Ground 1, -00906 IPR) ..	48
1.	A POSITA Would Not Have Been Motivated to Use the Ogata and Kawamura Lens Designs with Parulski .....	48
2.	Apple Has Not Shown that the Limitation “to find translations between matching points in the images to calculate depth information and to create a fused image suited for portrait photos” Is Satisfied Under Its Proper Construction .....	52
B.	Claims 21 and 22 Are Not Obvious Over the Combination of Parulski, Ogata, Kawamura, Soga, and Morgan-Mar (Ground 2, -00906 IPR) .....	58
XI.	SECONDARY CONSIDERATIONS / OBJECTIVE INDICIA OF NON-OBVIOUSNESS .....	60
A.	Industry Praise / Licensing.....	64
B.	Commercial Success .....	71
C.	Failure of Others / Copying.....	73
XII.	DECLARATION.....	75

## **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 system 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 Nos. IPR2020-00905 (“-00905 IPR”) IPR2020-00906 (“-00906 IPR”) and the accompanying Declarations of Fredo Durand. In particular, I have been asked to respond to Dr. Durand’s opinions set forth in his declarations, Ex. 1003 in each IPR.

2. The statements in this declaration summarize my opinions on these matters based on my over 30 years of study and research of imaging 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 \$575 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)<sup>1</sup>
  - Prosecution history of the '479 patent (Ex. 1002)
  - The declarations of Dr. Fredo Durand (Ex. 1003 in each IPR)
  - The curriculum vitae of Dr. Fredo Durand (Ex. 1004)
  - U.S. Patent No. 7,859,588 (“Parulski”) (Ex. 1005)
  - English translation of Japanese Patent Application Publication No. 2007-259108 (“Soga”) (Ex. 1006)
  - Jacobs et al., “Focal Stack Compositing for Depth of Field Control,” Stanford Computer Graphics Laboratory Technical Report 2012-1 (Ex. 1007)
  - Prosecution history of the Morgan-Mar patent (Ex. 1008)
  - U.S. Patent No. 8,989,517 (“Morgan-Mar) (Ex. 1009, Ex. 2037)
  - PCT Publication No. WO2013140359 (“Shalon”) (Ex. 1010)
  - U.S. Patent Application Publication No. 2008/0030592 (“Border”) (Ex. 1011)

---

<sup>1</sup> Where a given Apple exhibit appears with the same exhibit number in both IPRs on the '479 patent, or a given exhibit number is used in only one of the IPRs, I refer to the exhibit by that number. Where the same exhibit number is used for different exhibits in the two IPRs, e.g., for Dr. Durand’s declarations, I will attempt to always clarify which IPR’s exhibit I am referring to.

# 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.