UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner

v.

COREPHOTONICS, LTD.,
Patent Owner

IPR2020-00906
U.S. Patent 10,225,479

PETITIONER'S REPLY

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II. Claim Construction....1

A. "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)....1

III. Claims 19 and 20 are obvious over the combination of Parulski, Ogata, Kawamura, and Soga....4

A. Patent Owner does not dispute that "a camera controller configured to … *to find translations between matching point in the images to calculate depth information and to create a fused image suited for portrait photos*" is satisfied under Petitioner's construction. 5

B. Patent Owner relies on an incorrect premise that Ground 1 in the Petition requires Kawamura and Ogata to be used in a miniature camera module. 5

C. A POSITA would have considered the Kawamura and Ogata designs in selecting lenses for Parulski's digital camera. 8

1. A POSITA would have scaled Kawamura and Ogata for a digital camera, not a miniature camera module. 8

2. Patent Owner's list of miniature lens requirements should be rejected because they are based on improperly limiting Parulski to miniature camera modules using miniature lenses. 11

3. A POSITA would have looked to Kawamura among other lens designs when considering how to implement Parulski's camera. 12

D. Patent Owner's analysis is incorrect because it is based on a POSITA's understanding of technology in 1981 and incorrect understanding of ongoing relevance of older lens designs. 13

E. Lens design software analysis supports combining Parulski with Ogata and Kawamura. 15

1. Patent Owner fails to provide any optical design software analysis to support his opinion, which a POSITA at the time of the invention would have performed to evaluate prior art. ..15

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2. To the extent that Parulski is limited to miniature camera modules, modifications or adjustments would have been within the level of a POSITA to accommodate the teachings of Kawamura and Ogata in Parulski's camera. 15

IV. Claims 21 and 22 are obvious over the combination of Parulski, Ogata, Kawamura, Soga, and Morgan-Mar. 16

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A. No nexus. 18

1. Patent Owner is not entitled to a presumption of nexus. 18

2. Patent Owner fails to prove nexus. 19

B. Praise/licensing lacks nexus and is self-serving. 22

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PETITIONER'S EXHIBIT LIST

Updated: May 7, 2021

APPL-1001	U.S. Patent No. 10,225,479 to Shabtay et al. (the "'479 Patent")
APPL-1002	Prosecution history of the '479 Patent (the "'242 App")
APPL-1003	Declaration of Dr. Fredo Durand Ph.D.
APPL-1004	CV of Dr. Fredo Durand
APPL-1005	U.S. Patent No. 7,859,588 to Parulski et al. ("Parulski")
APPL-1006	JP Patent Application Publication No. 2007-259108 to Soga ("Soga"), English Translation, Declaration, and Original
APPL-1007	Jacobs et al., "Focal Stack Compositing for Depth of Field Control," Stanford Computer Graphics Laboratory Technical Report 2012-1
APPL-1008	Prosecution history Morgan-Mar
APPL-1009	U.S. Patent No. 8,989,517 to Morgan-Mar et al. ("Morgan-Mar")
APPL-1010	PCT Publication No. WO2013140359 to Shalon et al. ("Shalon")
APPL-1011	U.S. Patent Application Publication No. 2008/0030592 to Border et al. ("Border")
APPL-1012	JPS5862609A to Kawamura ("Kawamura")
APPL-1013	Used in co-filed Petition
APPL-1014	U.S. Patent No. 6,259,863 to Maruyama ("Maruyama")
APPL-1015	JP Pub. No. 2013-106289 to Konno et al. ("Konno"), Certified English translation and Original
APPL-1016	Ralph E. Jacobson et al., The Manual of Photography: photographic and digital imaging, 9th Edition, 2000 ("Jacobson")

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APPL-1017	U.S. Patent App. Pub. No. 2010/0321511 to Koskinen et al. ("Koskinen")
APPL-1018	U.S. Patent No. 7,206,136 to Labaziewicz et al. ("Labaziewicz")
APPL-1019	Milton Katz, INTRODUCTION TO GEOMETRICAL OPTICS (2002) ("Katz")
APPL-1020	Warren J. Smith, MODERN LENS DESIGN (1992) ("Smith")
APPL-1021	Declaration of Dr. Jose Sasián, Ph.D.
APPL-1022	ZEMAX Development Corporation, ZEMAX Optical Design Program User's Manual, February 14, 2011 ("ZEMAX User's Manual")
APPL-1023	Used in co-filed Petition
APPL-1024	Used in co-filed Petition
APPL-1025	Used in co-filed Petition
APPL-1026	U.S. Patent No. 5,546,236 to Ogata et al. ("Ogata")
APPL-1027	Used in co-filed Petition
APPL-1028	Bae et al., "Defocus Magnification," EUROGRAPHICS 2007, ("Bae")
APPL-1029	Specification sheet for Sony ICX629 image sensor ("ICX629")
APPL-1030	Specification sheet for Sony ICX624 image sensor ("ICX624")
APPL-1031	Used in co-filed Petition
APPL-1032	Used in co-filed Petition
APPL-1033	Product manual for Kodak Easyshare V610
APPL-1034	Used in co-filed Petition
APPL-1035	Robert E. Fischer et al., OPTICAL SYSTEM DESIGN (2008)

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