

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner

v.

NANOCO TECHNOLOGIES LIMITED,
Patent Owner

U.S. PATENT NO. 8,524,365
Case IPR2021-00186

SECOND DECLARATION OF MARK A. GREEN, PH.D.

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	QUALIFICATIONS	2
III.	UNDERSTANDING OF PATENT LAW	2
IV.	OVERVIEW OF THE TECHNOLOGY AND '365 PATENT	2
V.	LEVEL OF ORDINARY SKILL IN THE ART	2
VI.	CLAIM CONSTRUCTION	3
VII.	OVERVIEW OF THE PRIOR ART	3
VIII.	RESPONSE TO PO'S AND DR. COSSAIRT'S ARGUMENTS	3
A.	Ground 1: Claims 1, 7-12, 17, 22, and 23 Are Anticipated by Banin.....	3
1.	Banin Discloses a MCC	4
2.	Yu Provides Additional Evidence Why Banin Renders the Challenged Claims of Ground 1 Unpatentable	17
3.	Banin Discloses Conditions Permitting Seeding and Growth.....	18
B.	Ground 2: Claims 1, 7-12, 17, 22, and 23 Are Rendered Obvious By Banin	19
C.	Ground 3: Claims 2-6 and 18-21 Are Rendered Obvious by Banin in View of Herron.....	20
D.	Ground 4: Claims 13 and 14 Are Rendered Obvious by Banin in View of Treadway.....	27
E.	Ground 5: Claims 1-9 and 17-23 Are Rendered Obvious by Zaban in View of Farneth and Yu.....	28

F. Grounds 6-7: Claims 1, 2, 4, 7-18, and 22-23 Are Rendered Obvious by Lucey in View of Ahrenkiel, Plus Treadway, Collectively36

IX. PO’S BACKGROUND SECTIONS ARE NOT RELEVANT TO THE ISSUES IN THIS PROCEEDING.....39

X. NO SECONDARY CONSIDERATIONS40

XI. CONCLUSION.....41

LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,524,365 (“the ’365 patent”)
1002	Declaration of Mark A. Green in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 8,524,365
1003	Curriculum Vitae for Mark A. Green
1004	Prosecution History of U.S. Patent No. 8,524,365
1005	International Patent Publication No. WO 03/097904 to Banin et al. (“Banin”)
1006	A. Zaban et al., <i>Photosensitization of Nanoporous TiO₂ Electrodes with InP Quantum Dots</i> , 14 LANGMUIR 3153 (1998) (“Zaban”)
1007	Olga I. Mičić et al., <i>Synthesis and Characterization of InP Quantum Dots</i> , 98 J. PHYSICAL CHEMISTRY 4966 (1994) (“Mičić”)
1008	V. Ptatschek et al., <i>Quantized Aggregation Phenomena in II–VI–Semiconductor Colloids</i> , 102 BERICHTE DER BUNSEN–GESELLSCHAFT FÜR PHYSIKALISCHE CHEMIE 85 (1998) (“Ptatschek”)
1009	W. E. Farneth et al., <i>Bulk Semiconductors from Molecular Solids: A Mechanistic Investigation</i> , 4 CHEMISTRY OF MATERIALS 916 (1992) (“Farneth”)
1010	Heng Yu et al., <i>Heterogeneous Seeded Growth: A Potentially General Synthesis of Monodisperse Metallic Nanoparticles</i> , 123 J. AM. CHEMICAL SOC’Y 9198 (2001) (“Yu”)
1011	U.S. Patent No. 7,193,098 to Lucey et al. (“Lucey”)
1012	S.P. Ahrenkiel et al., <i>Synthesis and Characterization of Colloidal InP Quantum Rods</i> , 3 NANO LETTERS 833 (2003) (“Ahrenkiel”)
1013	INTENTIONALLY OMITTED
1014	INTENTIONALLY OMITTED
1015	U.S. Patent No. 6,815,064 to Treadway et al. (“Treadway”)

Exhibit No.	Description
1016	N. Herron et al., <i>Crystal Structure and Optical Properties of Cd₃₂Si₁₄(SC₆H₅)₃₆·DMF₄, a Cluster with a 15 Angstrom CdS Core</i> , 259 SCIENCE 1426 (1993) (“Herron”)
1017	<i>Seven Networks, LLC v. Apple Inc.</i> , C.A. No. 2:19-cv-00115-JRG, Dkt. 313 (Sept. 22, 2020)
1018	Docket Control Order, <i>Nanoco Technologies Ltd. v. Samsung Electronics Co., Ltd.</i> , No. 2:20-cv-00038 (E.D. Tex.)
1019	October 2021 Calendar for Judge Rodney Gilstrap, Eastern District of Texas
1020	Return of summons to Samsung Electronics Co. and Samsung Electronics America, <i>Nanoco Technologies Ltd. v. Samsung Electronics Co., Ltd.</i> , No. 2:20-cv-00038 (E.D. Tex.)
1021	Letter dated November 9, 2020 from M. Pearson to M. Newman re stipulation about invalidity grounds
1022	Infringement contentions, <i>Nanoco Technologies Ltd. v. Samsung Electronics Co., Ltd.</i> , No. 2:20-cv-00038 (E.D. Tex.)
1023	Cover material for Zaban
1024	Cover material for Mičić
1025	INTENTIONALLY OMITTED
1026	Cover material for Farneth
1027	Cover material for Yu
1028	Cover material for Ahrenkiel
1029	INTENTIONALLY OMITTED
1030	Cover material for Herron
1031	Declaration of Chris Lowden
1032	Declaration of David Smorodin
1033	INTENTIONALLY OMITTED
1034	Declaration of Rachel Watters
1035	Catherine J. Murphy, <i>Optical Sensing with Quantum Dots</i> , 74 ANALYTICAL CHEMISTRY 520A (2002)

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.