

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS
AMERICA, INC., SAMSUNG SEMICONDUCTOR, INC., and SAMSUNG
AUSTIN SEMICONDUCTOR LLC,
Petitioners,

v.

W&WSENS DEVICES INC.,
Patent Owner.

Case PGR2025-00082
U.S. Patent No. 12,243,948

**PATENT OWNER'S OBJECTIONS TO EVIDENCE
UNDER 37 C.F.R. § 42.64**

Patent Owner W&Wsens Devices Inc. (“W&Wsens” or “Patent Owner”) objects under the Federal Rules of Evidence and 37 C.F.R. § 42.64(b)(1) to the admissibility of the following Petitioners’ exhibits. These objections are timely, having been filed within 10 business days of the institution of trial.

Exhibit No.	Description
1002	Declaration of Dr. Michael Lebby (“Lebby Decl.”)
1008	Zhihong Huang et al., <i>Microstructured silicon photodetector</i> , Applied Physics Letters, Vol. 89 (2006), pp. 033506-1 to -3.
1009	Richard A. Myers et al., <i>Enhancing near-infrared avalanche photodiode performance by femtosecond laser microstructuring</i> , Applied Optics, Vol. 45, No. 35 (Dec. 2006), pp. 8825-31.
1010	Abbas El Gamal et al., <i>CMOS Image Sensors</i> , IEEE Circuits & Devices Magazine (May/June 2005), pp. 6-20.
1011	<i>Electrical Engineering Dictionary – CRCnetBase 2000</i> (Phillip A. Laplante editor-in-chief, CRC Press LLC 2000), pp. 1-11.
1012	S.M. Sze et al., <i>Semiconductor Devices - Physics and Technology</i> (John Wiley & Sons, Inc. 3d ed. 2012), pp. 6-9, 205-10, 325-30, 392-406, 416-17, 466-67.
1013	John P. Uyemura, <i>CMOS Logic Circuit Design</i> (Kluwer Academic Publishers 2002), pp. 64, 74-102, 315-17, 458-60.
1014	Khalil Jumah Tawfiq Hamam, <i>Organic Solar Cells Based on High Dielectric Constant Materials: An Approach to Increase Efficiency</i> (June 2013) (Ph.D. dissertation, Western Michigan University), pp. 1-122.
1015	P. Kalugasalam et al., <i>Dielectric and AC Conduction Studies of Lead Phthalocyanine Thin Film</i> , Chalcogenide Letters, Vol. 6, No. 9 (Sept. 2009), pp. 469-76.

Exhibit No.	Description
1016	Matthew Saucedo, <i>Porphyrin Thin Film Dielectrics</i> , SUNFEST Technical Report TR-CST01NOV04, Center for Sensor Technologies, Univ. of Pennsylvania, Philadelphia, PA (2004), pp. 181-98.
1017	N. Venkatramaiah et al., <i>Spectroscopic and dielectric studies of meso-tetrakis(p-sulfonatophenyl) porphyrin doped hybrid borate glasses</i> , Journal of Alloys and Compounds, Vol. 509 (2011), pp. 2797-803.
1018	Tom J. Savenije, <i>Photogeneration and transport of charge carriers in a porphyrin p/n heterojunction</i> , Physical Review B, Vol. 55, No. 15 (Apr. 1997), pp. 9685-92.
1019	Ümit Salan et al., <i>Synthesis, characterization, electrical and dielectric permittivity measurements of 2,9,16,23-tetra(4-ferrocenylimino-3-nitrophenoxy)phthalocyanines</i> , Journal of Porphyrins and Phthalocyanines, Vol. 10 (2006), pp. 1263-70.
1020	Teresa M. Figueira-Duarte et al., <i>Pyrene-Based Materials for Organic Electronics</i> , Chemical Reviews, Vol. 111 (2011), pp. 7260-314.
1021	Jurgen Michel et al., <i>Advances in fully CMOS integrated photonic devices</i> , Proceedings of SPIE, Vol. 6477 (2007), pp. 64770P-1 to -11.
1022	Mark Beals et al., <i>Process Flow Innovations for Photonic Device Integration in CMOS</i> , Proceedings of SPIE, Vol. 6898 (2008), pp. 689804-1 to -14.
1023	Donald A. Neaman, <i>Semiconductor Physics and Devices – Basic Principles</i> (McGraw Hill 3d ed. 2003), pp. 247-50, 260-61.
1024	Laurent Frey et al., <i>Color filters including infrared cut-off integrated on CMOS image sensor</i> , Optics Express, Vol. 19, No. 14 (2011), pp. 13073-80.
1028	Horst Zimmermann, <i>Integrated Silicon Optoelectronics</i> (Springer. 2d ed. 2010), pp. 1-7.

Exhibit No.	Description
1029	Ran Aharoni et al., <i>Basic model of absorption depth and injection levels in silicon under intermediate illumination levels</i> , Optics Communications, Vol. 291 (2013), pp. 1-6.
1030	M.M. El-Nahass et al., <i>Structural and optical properties of Ni (II) tetraphenyl porphyrin thin films</i> , Eur. Phys. J. Appl. Phys., Vol. 57 (2012), pp. 30201-p1 to -p13.
1031	Martin A. Green, <i>Self-consistent optical parameters of intrinsic silicon at 300K including temperature coefficients</i> , Solar Energy Materials & Solar Cells, Vol. 92, (2008), pp. 1305-10.
1032	P.A. Lane et al., <i>Electroabsorption studies of phthalocyanine/perylene solar cells</i> , Solar Energy Materials & Solar Cells, Vol. 63 (2000), pp. 3-13.
1033	Connie J. Chang-Hasnain et al., <i>High-contrast gratings for integrated optoelectronics</i> , Advances in Optics and Photonics, Vol. 4 (2012), pp. 379-440.
1034	H.H. Li, <i>Refractive Index of Silicon and Germanium and Its Wavelength and Temperature Derivatives</i> , J. Phys. Chem. Ref. Data, Vol. 9, No. 3 (1980), pp. 561-658.
1036	M.M. El-Nahass et al., <i>Structural and optical properties of thermally evaporated zinc phthalocyanine thin films</i> , Proc. 2 nd Saudi Sci. Conf. (Mar. 2004), pp. 277-93.
1037	M.E. Azim-Araghi et al., <i>Electrical and optical properties of an organic semiconductor metal-free phthalocyanine (C₃₂H₁₈N₈)</i> , Eur. Phys. J. Appl. Phys., Vol. 58 (2012), pp. 30201-p1 to -p6.
1039	J.S. Arney et al., <i>Color Properties of Specular Reflections</i> , IS&T's NIP20: 2004 International Conference on Digital Printing Technologies, pp. 445-49.
1040	Andrew Blakers et al., <i>Thin Single Crystalline Elongate Silicon Solar Cells</i> , Energy Procedia, Vol. 15 (2012), pp. 58-66.
1041	A. El Amrani et al., <i>Solar Module Fabrication</i> , International Journal of Photoenergy, Article ID 27610 (2007), pp. 1-5.

Exhibit No.	Description
1042	Ji-Tao Liu et al., <i>Curing Determination of EVA for Solar Panel Application by DSC</i> , Application Note, PerkinElmer (2010), pp. 1-3.
1043	Chen ShuoFu et al., <i>A comprehensive consideration of bias voltage and temperature to extract the intrinsic frequency response of photodiodes</i> , Chinese Science Bulletin, Vol. 55, No. 32 (2010), pp. 3727-33.
1044	Richard S. Quimby, <i>Photonics and Lasers - An Introduction</i> (John Wiley & Sons, Inc. 2006), pp. 249-79.
1046	A. Vandenbroucke et al., <i>Influence of temperature and bias voltage on the performance of a high resolution PET detector built with position sensitive avalanche photodiodes</i> , IOP Publishing for Sissa Medialab (2012), pp. 1-30.
1048	Renato Turchetta et al., <i>Introduction to CMOS Image Sensors</i> , Molecular Expressions™ Optical Microscopy Primer: Digital Imaging in Optical Microscopy (July 16, 2004), pp. 1-9, available at https://web.archive.org/web/20120508153832/https://micro.magnet.fsu.edu/primer/digitalimaging/cmosimagesensors.html
1051	Christopher Chase et al., <i>Size effect of high contrast gratings in VCSELs</i> , Optics Express, Vol. 17, No. 26 (Dec. 2009), pp. 24002-07.
1052	Eric R. Fossum, <i>CMOS Image Sensors: Electronic Camera-On-A-Chip</i> , IEEE Transactions on Electron Devices, Vol. 44, No. 10 (Oct. 1997), pp. 1689-98.
1054	Sunetra Mendis et al., <i>CMOS Active Pixel Image Sensor</i> , IEEE Transactions on Electron Devices, Vol. 41, No. 3 (Mar. 1994), pp. 452-53.
1056	Certified English translation of Japanese Published Unexamined Patent Application No. P2007-129024A to Hasegawa (“Hasegawa”)

W&Wsens objects to the Lebby Decl. (Ex. 1002) under Federal Rules of Evidence (“FRE”) 802 as inadmissible hearsay if Petitioner does not make Dr. Lebby available for a deposition in this proceeding.

W&Wsens objects to Exhibits 1008-1024, 1028-1034, 1036-1037, 1039-1044, 1046, 1048, 1051-1052, 1054, and 1056 under FRE 801-803 as constituting or containing inadmissible hearsay. These exhibits contain out-of-court statements that are offered for the truth of the matter asserted therein.

W&Wsens objects to Exhibits 1008-1024, 1028-1034, 1036-1037, 1039-1044, 1046, 1048, 1051-1052, 1054, and 1056 under FRE 901 as lacking evidence of authentication. These exhibits have not been shown to be self-authenticating, and Petitioner has not produced any evidence sufficient to support a finding that the exhibits are what Petitioner claims them to be. Use of unauthenticated documents is not reasonable, particularly to the extent they are relied upon for the truth of the matter asserted.

W&Wsens objects to Exhibits 1052, 1054, and 1056 under FRE 401-403 as being prejudicial, confusing, or a waste of time. These exhibits are not cited in the Petition and are not relevant to this proceeding.

Respectfully submitted,

Date: February 25, 2026

/James Hannah/

James Hannah (Reg. No. 56,369)
HERBERT SMITH FREEHILLS
KRAMER (US) LLP
333 Twin Dolphin Drive, Suite 700
Redwood Shores, CA 94065
Telephone: (650) 752-1700
Facsimile: (650) 752-1800
james.hannah@hsfkramer.com

Aaron M. Frankel (Reg. No. 52,913)
Jeffrey H. Price (Reg. No. 69,141)
Jeffrey Eng (Reg. No. 63,189)
Jenna Fuller (Reg. No. 74,212)
HERBERT SMITH FREEHILLS
KRAMER (US) LLP
1177 Avenue of the Americas
New York, NY 10036
Telephone: (212) 715-9100
Facsimile: (212) 715-8000
aaron.frankel@hsfkramer.com
jeffrey.price@hsfkramer.com
jeffrey.eng@hsfkramer.com
jenna.fuller@hsfkramer.com

Attorneys for Patent Owner
W&Wsens Devices Inc.

CERTIFICATE OF SERVICE

The undersigned certifies, in accordance with 37 C.F.R. § 42.6(e), and pursuant to agreement by the parties that filing with the Board through the Patent Trial and Appeal Case Tracking System (P-TACTS) constitutes electronic service, that service was made on Petitioners as detailed below.

<i>Date of service</i>	February 25, 2026
<i>Manner of service</i>	Electronic Filing with the Board (joshua.goldberg@finnegan.com; benjamin.saidman@finnegan.com; abhay.watwe@finnegan.com; biju.chandran@finnegan.com; kai.rajan@finnegan.com)
<i>Documents served</i>	PATENT OWNER'S OBJECTIONS TO EVIDENCE UNDER 37 C.F.R. § 42.64
<i>Persons Served</i>	Finnegan, Henderson, Farabow, Garrett & Dunner, LLP: Joshua L. Goldberg Benjamin A. Saidman Abhay A. Watwe Biju I. Chandran Kai Rajan

/James Hannah/
James Hannah
Registration No. 56,369
Lead Counsel for Patent Owner