

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD.
Petitioner,

v.

PICTIVA DISPLAYS INTERNATIONAL LTD.,
Patent Owner.

Case No. IPR2024-01094
Patent No. 8,558,223

PATENT OWNER'S UPDATED EXHIBIT LIST

UPDATED EXHIBIT LIST

Exhibit No.	Document Description
EX2001	Declaration of Professor Kirk Schanze
EX2002	K. Walzer et al., <i>Highly Efficient Organic Devices Based on Electrically Doped Transport Layers</i> , 107 Chem. Rev. 1233-71 (2007)
EX2003	Böjn Lüssem et al. <i>Doped Organic Transistors</i> , 116 Chem. Rev. 13714-51 (2016)
EX2004	F. Albert Cotton et al., <i>Multiple Bonds between Metal Atoms</i> , 3d ed., Spring Science and Business Media, Inc. (2005)
EX2005	Dan Wang et al., <i>Highly efficient green organic light-emitting diodes from single exciplex emission</i> , 92 App. Phys. Lett. 053304 (2008), downloaded from https://www.researchgate.net/publication/257949210_Highly_efficient_green_organic_light-emitting_diodes_from_single_exciplex_emission/download?tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6Ii9kaXJlY3QiLCJwYWdlIjojX2RpcmVjdCJ9fQ
EX2006	Q. Xin et al., <i>Emission mechanism in organic light-emitting devices comprising a europium complex as emitter and an electron transporting material as host</i> , 101 J. App. Phys 044512 (2007)
EX2007	Hsian-Fan Chen et al., <i>1,3,5-Triazine derivatives as new electron transport-type host materials for highly efficient green phosphorescent OLEDs</i> , 19 J. Mater. Chem. 8112-8118 (2009), downloaded from https://www.researchgate.net/publication/228923869_1_3_5-Triazine_derivatives_as_new_electron_transport-type_host_materials_for_highly_efficient_green_phosphorescent_OLEDs
EX2008	F. Albert Cotton et al., <i>Synthesis and reactivity of a very strong reducing agent containing a quadruple bond: structures of $W_2(hpp)_4$ and $W_2(hpp)_4Cl_2 \cdot 4CH_2Cl_2$</i> , 6 Inorganic Chemistry Communications 121-126 (2003)

EX2009	F. Albert Cotton et al., <i>Closed Shell Molecules That Ionize More Readily Than Cesium</i> , 298 Science 1971-1974 (2002)
EX2010	Sebastian Scholz et al., <i>Self-doping and partial oxidation of metal-on-organic interfaces for organic semiconductor devices studied by chemical analysis techniques</i> , 104 J. App. Phys. 104502 (2008), downloaded from https://www.researchgate.net/publication/52002446_Self-doping_and_partial_oxidation_of_metal-on-organic_interfaces_for_organic_semiconductor_devices_studied_by_chemical_analysis_techniques
EX2011	Huan Wang et al., <i>Photophysical and Electronic Properties of Five PCBM-like C₆₀ Derivatives: Spectral and Quantum Chemical View</i> , 116 J. Phys. Chem. 255-62 (2012), downloaded from https://www.researchgate.net/publication/51842031_Photophysical_and_Electronic_Properties_of_Five_PCBM-like_C-60_Derivatives_Spectral_and_Quantum_Chemical_View
EX2012	Koopman's Theorem, downloaded from https://chem.libretexts.org/@go/page/64945
EX2013	M. Amati et al., <i>The Electron Affinity as the Highest Occupied Anion Orbital Energy with a Sufficiently Accurate Approximation of the Exact Kohn-Sham Potential</i> , 16 J. Chem. Theory Comput. 443-52 (2020), available from https://pubs.acs.org/doi/10.1021/acs.jctc.9b00981 .
EX2014	Shigeki Naka et al., <i>High electron mobility in bahophenanthroline</i> , 76 Appl. Phys. Lett. 197-199 (2000)
EX2015	Torben Menke, <i>Molecular Doping of Organic Semiconductors: A Conductivity and Seebeck Study</i> , Dissertation, Technische Universität Dresden (2013)
EX2016	Max L. Tietze et al., <i>Self-passivation of molecular n-type doping during air exposure using a highly efficient air-instable dopant</i> , 210 Physica Status Solidi 2188-2198 (2013), abstract only, available from https://onlinelibrary.wiley.com/doi/10.1002/pssa.201330049
EX2017	Charles A. Crawford et al., <i>Reaction of 2,2'-Bipyridine (bpy) with Dirhodium Carboxylates: Mono-bpy Products with Variable Chelate Binding Modes and Insights into the Reaction Mechanism</i> , 32 Inorg. Chem. 3125-3133 (1993)

EX2018	Charles A. Crawford et al., <i>Reaction of Nitrogen Chelates with the $[Rh_2]^{4+}$ Core: Bis-Chelate Products and Demonstration of Reversible, Chelate-Based Reduction Process</i> , 36 Inorg. Chem., 2361-2371 (1997)
EX2019	C. W. Law et al., <i>Effective organic-based connection unit for stacked organic light-emitting devices</i> , 89 Appl. Phys. Lett. 133511 (2006), abstract only
EX2020	Dong-Seok Leem et al., <i>Rubidium-Carbonate-Doped 4,7-Diphenyl-1,10-phenanthroline Electron Transporting Layer for High-Efficiency p-i-n Organic Light Emitting Diodes</i> , 12(1) Electrochem. & Solid-State Lett. J8-J10 (2009), available from https://www.semanticscholar.org/paper/Rubidium-Carbonate-Doped-Electron-Transporting-for-Leem-Kim/5f64df92acfbbaa00c68c05bdd74f6ebbec78fa
EX2021	Yongzhen Chen et al., <i>n-Doping-induced efficient electron-injection for high efficiency inverted organic light-emitting diodes based on thermally activated delayed fluorescence emitter</i> , 5 J. Mater. Chem. C. 8400-8407 (2017), abstract only, available from https://pubs.rsc.org/en/content/articlelanding/2017/tc/c7tc02406a
EX2022	printout of https://www.sciencedirect.com/science/article/abs/pii/S0379677908001653 (Ma reference)
EX2023	Scopus Preview for references citing the Ma reference, available from https://www.scopus.com/results/citedbyresults.uri?sort=plf-f&cite=2-s2.0-57649228487&src=s&imp=t&sid=d32d5ac36b34f63475a939d79b8ad832&sot=cite&sdt=a&sl=0&origin=inward&editSaveSearch=&txGid=504fad81394a3927a1e740526430fa60
EX2024	screen shot of Web of Science Record of Ma
EX2025	Printout of https://web.archive.org/web/20250000000000*/www.elsevier.com/locate/synmet (last visited May 3, 2025)
EX2026	Certified Translation of DE 10 2008 049 286.8
EX2027	Certified Translation of DE 10 2008 056 391.9

EX2028	Shinji Toyota et al., <i>Synthesis, Spectroscopic Properties, and Cu(I) Complexes of All Possible Symmetric Bi-1,10-Phenanthroline</i> , 65(3) <i>Heterocycles</i> 551-562 (2005), available from http://triggered.edina.clockss.org/ServeContent?url=http%3A%2F%2Fwww.heterocycles.jp%2Fclockss%2Fdownloads%2FPDF%2F01540%2F65%2F3]
EX2029	Tracy J. Terry & T. Daniel P. Stack, <i>Covalent Heterogenization of a Discrete Mn(II) Bis-Phen Complex by a Metal-Template/Metal-Exchange Method: An Epoxidation Catalyst with Enhanced Reactivity</i> , 130(14) <i>J. Am. Chem. Soc.</i> (2008), abstract only, downloaded from https://pubs.acs.org/doi/10.1021/ja0742030
EX2030	Mudasir et al., <i>DNA Binding of Iron(II)-Phenanthroline Complexes: Effect of Methyl Substitution on Thermodynamic Parameters</i> , 77(3-4) 63b <i>Z. Naturforsch.</i> 37-46 (2008), downloaded from http://www.znaturforsch.com/ab/v63b/63b0037.pdf
EX2031	Mudasir et al., <i>Iron(II) and nickel(II) mixed-ligand complexes containing 1,10-phenanthroline and 4,7-diphenyl-1,10-phenanthroline</i> , 24 <i>Transition Met. Chem.</i> 210-217 (1999)
EX2032	Johannes Karges et al., <i>Rationally Designed Long-Wavelength Absorbing Ru(II) Polypyridyl Complexes as Photosensitizers for Photodynamic Therapy</i> , 142(14) <i>J. Am. Chem. Soc.</i> 6578-6587 (2020), downloaded from https://insu.hal.science/insu-02892038v1
EX2033	Federal Court Management Statistics for U.S. District Courts, available from https://www.uscourts.gov/statistics/table/na/federal-courtmanagement-statistics/2024/06/30-1
EX2034	Samsung Invalidity Contentions in <i>Pictiva Displays Int'l Ltd. v. Samsung Electronics Co. Ltd., et al.</i> , Case No. 2:23-cv-000495 (E.D. Tex. Jun. 11, 2024)
EX2035	Amira K. Hajri et al., <i>Synthesis and photophysical properties of new reactive fluorophenanthrenes</i> , 23(4-5) <i>Comptes Rendus Chimie</i> 315-327 (2020), downloaded from https://comptes-rendus.academie-sciences.fr/chimie/articles/10.5802/crchim.29/
EX2036	R. J. Holmes et al., <i>Efficient, deep-blue organic electrophosphorescence by guest charge trapping</i> , 83 <i>Appl. Phys. Lett.</i> 3818-3820 (2003)

EX2037	Yu-Xiao Lin et al., <i>Connecting the irreversible capacity loss in Li-ion batteries with the electronic insulating properties of solid electrolyte interphase (SEI) components</i> , 309 J. Power Source 221-230 (2016)
EX2038	Paul A. Anderson, <i>the Work Function of Lithium</i> , 75 Phys. Rev. 1205 (1949), abstract only
EX2039	2024-12-09 Email from Samsung to Pictiva re “IPR2024-01095 – Stipulation”
EX2040	Deposition Transcript of Dr. Schubert with Ex. 1 of the deposition (Schubert Declaration)
EX2041	Declaration of Professor Kirk Schanze
EX2042	Deposition Transcript of Dr. Barry Rand
EX2043	U.S. Patent No. 7,911,129 assigned to Novaled AG
EX2044	U.S. Patent No. 7,972,541 assigned to Novaled AG
EX2045	U.S. Patent No. 7,704,554
EX2046	M. T. Rodgers et al., <i>Cationic Noncovalent Interactions: Energetics and Periodic Trends</i> , 116 Chem. Review 5642-5687 (2016)
EX2047	T. Sasaki et al., <i>Effects of Energy-Level Alignment on Operating Voltages of Blue Organic Light-Emitting Diodes</i> , Adv. Mater. Interfaces 2023, 10, 2201925
EX2048	T. Sasaki et al., <i>Effects of Energy-Level Alignment on Operating Voltages of Blue Organic Light-Emitting Diodes</i> , Supporting Information for Adv. Mater. Interfaces 2023, 10, 2201925, available at DOI: 10.1002/admi.202201925
EX2049	Felipe A. Angel et al., <i>Silver-induced activation of 8-hydroxyquinolinato lithium as electron injection material in single-stack and tandem OLED devices</i> , Organic Electronics 59, 220-223 (2018)
EX2050	Min Seok Ki et al., <i>Improved Thermal Stability and Operational Lifetime of Blue Fluorescent Organic Light-Emitting Diodes by Using a Mixed-Electron Transporting Layer</i> , ACS Materials Lett. 4, 1676–1683 (2022)
EX2051	Kymissis Opening Report (Excerpt)
EX2052	Kymissis Rebuttal Report (Excerpt)
EX2053	Redacted Responsive Claim Construction Brief by Samsung

EX2054	Declaration of Dr. E. Fred Schubert in <i>Pictiva Displays International Ltd. v. Samsung Electronics Co., Ltd.</i> , 2:23-cv-495-JRG (E.D. Tex., Nov. 12, 2024)
EX2055	Memorandum Claim Construction Opinion and Order in <i>Pictiva Displays International Ltd. v. Samsung Electronics Co., Ltd.</i> , 2:23-cv-495-JRG (E.D. Tex. June 27, 2025)
EX2056	2025-08-26 Rand Deposition Transcript with attached Exhibits
EX2057	2025-09-03 Holmes Deposition Transcript
EX2058	Resubmitted EX1021 with missing exhibits
EX2059	2025-09-03 Munford Deposition Transcript
EX2060	Patent Owner's Demonstratives
EX2100	Jun Yeob Lee, <i>Efficient electron injection in organic light-emitting diodes using lithium quinolate/Mg:Ag/Al cathodes</i> , Journal of Industrial and Engineering Chemistry 14, 676–678 (2008)
EX2101	C. Schmitz et al., <i>Lithium-Quinolate Complexes as Emitter and Interface Materials in Organic Light-Emitting Diodes</i> , Chem. Mater., 12, 3012-3019 (2000)
EX2102	Exhibit 2102 of Rand deposition
EX2103	Markman Hearing Transcript in <i>Pictiva Displays International Ltd. v. Samsung Electronics Co., Ltd.</i> , 2:23-cv-495-JRG (E.D. Tex. Feb. 4, 2025)
EX2104	Abderrahim Moumen et al., <i>P-Type Metal Oxide Semiconductor Thin Films: Synthesis and Chemical Sensor Applications</i> , Sensors 2022, 22, 1359.
EX2105	Fu, Y. et al., <i>Quantum-Chemical Predictions of Absolute Standard Redox Potentials of Diverse Organic Molecules and Free Radicals in Acetonitrile</i> , J. Am. Chem. Society, 127, 7227-7234 (2005) (referenced as Ex. 11 to EX1021)
EX2106	(Under seal) Kymissis Deposition Transcript (referenced as Ex. 13 to EX1021)

Dated: October 22, 2025

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CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. section 42.6, that on October 22, 2025 a complete copy of the foregoing documents **PATENT OWNER'S UPDATED EXHIBIT LIST AND EXHIBIT 2060** were served by electronic mail, as agreed to by the parties, upon the following:

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