

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

EMPIRE TECHNOLOGY DEVELOPMENT LLC,
Patent Owner.

Case No. IPR2024-00896
U.S. Patent No. 8,798,120

PETITIONER'S UPDATED LIST OF EXHIBITS

LIST OF EXHIBITS¹

Ex. No.	Description
Ex-1001	U.S. Patent No. 8,798,120 (“the ’120 Patent”)
Ex-1002	Declaration of Dr. Matthew C. Valenti
Ex-1003	Curriculum Vitae of Dr. Matthew C. Valenti
Ex-1004	Prosecution History of the ’120 Patent (Application No. 12/727,049)
Ex-1005	U.S. Patent Publication No. 2006/0067263 (“Li”)
Ex-1006	Mohammad Z. Siam et al., <i>Adaptive Multi-antenna Power Control in Wireless Networks</i> , International Conference on Wireless Communications and Mobile Computing 875-880 (2006) (“Siam”)
Ex-1007	Shuguang Cui et al., <i>Modulation Optimization Under Energy Constraints</i> , 4 Institute of Electrical and Electronic Engineers International Conference on Communications 2805-2811 (2003) (“Cui-2003”)
Ex-1008	Esa Tirola and Juha Ylitalo, <i>Performance of a UMTS Uplink MIMO Scheme</i> , 1 Institute of Electrical and Electronic Engineers 58th Vehicular Technology Conference 657-661 (2003) (“Tirola”)
Ex-1009	U.S. Patent Publication No. 2007/0171808 (“Wu”)
Ex-1010	INTENTIONALLY LEFT BLANK
Ex-1011	INTENTIONALLY LEFT BLANK
Ex-1012	INTENTIONALLY LEFT BLANK
Ex-1013	INTENTIONALLY LEFT BLANK

¹ Four-digit pin citations that begin with 0 are to the branded numbers added by Samsung in the bottom right corner of the exhibits. All other pin citations are to original page, column, paragraph, or line numbers.

Ex. No.	Description
Ex-1014	INTENTIONALLY LEFT BLANK
Ex-1015	INTENTIONALLY LEFT BLANK
Ex-1016	INTENTIONALLY LEFT BLANK
Ex-1017	INTENTIONALLY LEFT BLANK
Ex-1018	INTENTIONALLY LEFT BLANK
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Ex-1020	Claim Mapping Table
Ex-1021	<i>Empire Technology Development LLC v. Samsung Electronics Co., Ltd., et al.</i> , Case No. 2:23-cv-00427, Infringement Contentions (E.D. Tex. Jan. 4, 2024).
Ex-1022	Declaration of Scott Delman dated Mar. 8, 2024 (Association for Computing Machinery)
Ex-1023	Declaration of Gordon Macpherson dated Apr. 27, 2024 (Institute of Electrical and Electronics Engineers, Incorporated)
Ex-1024	Screenshot of ACM website (Siam)
Ex-1025	Shuguang Cui et al., <i>Energy-Constrained Modulation Optimization</i> , 4 Institute of Electrical and Electronic Engineers Transactions of Wireless Communications 2349-2360 (Sept. 2005) (“Cui-2005”)
Ex-1026	Shuguang Cui et al., <i>Energy-Efficiency of MIMO and Cooperative MIMO Techniques in Sensor Networks</i> , 22 Institute of Electrical and Electronic Engineers Selected Areas in Communications 1089-1098 (Aug. 2004) (“Cui-2004”)
Ex-1027	INTENTIONALLY LEFT BLANK
Ex-1028	U.S. Patent Publication No. 2008/0095263 (“Xu”)
Ex-1029	Adam J. Tenenbaum et al., <i>Improved Sum-Rate Optimization in the</i>

Ex. No.	Description
	<i>Multiuser MIMO Downlink</i> , IEEE 984 (2008) (“Tenenbaum”)
Ex-1030	Runhua Chen et al., <i>Uplink Power Control in Multi-Cell Spatial Multiplexing Wireless Systems</i> , 6 IEEE Transactions of Wireless Communications 2700 (July 2007) (“Chen”)
Ex-1031	U.S. Patent Publication No. 2005/0250452 (“Walton”)
Ex-1032	Screenshot of CD contents from Cui-2003 presentation
Ex-1033	Bruno Bougard et al., <i>SmartMIMO: An Energy-Aware Adaptive MIMO-OFDM Radio Link Control for Next-Generation Wireless Local Area Networks</i> , EURASIP Journal on Wireless Communications and Networking (2007) (“Bougard”)
Ex-1034	Andreas F. Molisch et al., <i>MIMO Systems with Antenna Selection</i> , IEEE Microwave Magazine 46 (2004) (“Molisch”)
Ex-1035	Chan-Byoung Chae et al., <i>Adaptive Spatial Modulation for MIMO-OFDM</i> , IEEE Communications Society 87 (2004) (“Chae”)
Ex-1036	Kyeongjun Ko et al., <i>Low Complexity Multiuser MIMO Scheduling with Chordal Distance</i> , IEEE 80 (2008) (“Ko”)
Ex-1037	Alkan Soysal et al., <i>Optimizing the Rate of a Correlated MIMO Link Jointly over Channel Estimation and Data Transmission Parameters</i> , IEEE 74 (2008) (“Soysal”)
Ex-1038	U.S. Patent Publication No. 2005/0289367 (“Clark”)
Ex-1039	U.S. Patent Publication No. 2008/0186918 (“Tinnakornsriruphap”)
Ex-1040	Shuguang Cui et al., <i>Cross-Layer Energy and Delay Optimization in Small-Scale Sensor Networks</i> , 6 IEEE Transactions on Wireless Communications 3688 (2007) (“Cui-2007”)
Ex-1041	U.S. Patent No. 8,315,346 (“Kim”)
Ex-1042	Karama Hamdi et al., <i>Low-Complexity Antenna Selection and User Scheduling in Cognitive MIMO Broadcast Systems</i> , IEEE 4038

Ex. No.	Description
	(2008) (“Hamdi”)
Ex-1043	Screenshot of CD contents from Tirola presentation
Ex-1044	Chulhan Lee et al., <i>Adaptive Mode Switching in the MIMO Broadcast Channel</i> , IEEE 711 (2008) (“Lee”)
Ex-1045	Theodore S. Rappaport, <i>Wireless Communication, Principles and Practice</i> , Ch. 1, 1-24 (2nd ed., 2001)
Ex-1046	Defendants Samsung’s Elecs. Co., Ltd. and Samsung Elecs. Am., Inc.’s Stipulation Regarding Invalidity Challenges in <i>Empire Technology LLC v. Samsung Elecs. Co., Ltd. et al.</i> , Case No. 2:23-cv-00427-JRG (E.D. Tex.) (Dkt. 44)
Ex-1047	Email from the Board authorizing Petitioner’s Preliminary Reply (Oct. 3, 2024)
Ex-1048	Plaintiff Empire Tech. Development LLC’s Disclosure of Proposed Terms and Claim Elements for Construction (Sept. 18, 2024)
Ex-1049	Plaintiff Empire Tech. Development LLC’s Disclosure of Proposed Claim Constructions (Oct. 9, 2024)
Ex-1050	<i>Empire Technology Development LLC v. Samsung Electronics Co., Ltd., et al.</i> , Case No. 2:23-cv-00427, Claim Construction Order Dkt. 117 (E.D. Tex. Mar. 31, 2025)
Ex-1051	Steven M. Kaplan, Wiley Electrical and Electronics Engineering Dictionary 415, 797 (2004)
Ex-1052	Transcript of the deposition of Robert Akl, D.Sc., dated May 28, 2025
Ex-1053	Petitioner’s Demonstratives

Respectfully Submitted,

/s/ Ben Haber

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CERTIFICATE OF SERVICE

I hereby certify that on September 12, 2025, I caused a true and correct copy of the foregoing PETITIONER'S UPDATED LIST OF EXHIBITS to be served electronically on counsel for Patent Owner at the following addresses:

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