

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLIED MATERIALS, INC.

Petitioner

v.

DEMARAY LLC  
Patent Owner

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Patent No. 7,544,276

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**PETITION FOR *INTER PARTES* REVIEW  
OF U.S. PATENT NO. 7,544,276**

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**LIST OF EXHIBITS**

1001	U.S. Patent No. 7,544,276
1002	Declaration of Dr. Vivek Subramanian
1003	Curriculum Vitae of Dr. Vivek Subramanian
1004	File History for U.S. Patent No. 7,544,276
1005	U.S. Patent No. 6,342,134 to Barber et al.
1006	U.S. Patent No. 6,485,602 to Hirose
1007	U.S. Patent No. 5,651,865 to Sellers
1008	A. Belkind et al., <i>Pulsed-DC reactive sputtering of dielectrics: Pulsing parameter effects</i> (2000)
1009	U.S. Patent No. 4,464,223 to Gorin
1010	U.S. Patent No. 6,132,564 to Licata
1011	U.S. Patent No. 5,942,089 to Sproul
1012	U.S. Patent No. 6,352,629 to Wang
1013	S. Gibilisco, <i>Handbook of Radio &amp; Wireless Technology</i> (1999)
1014	J. Joo, <i>Low-temperature polysilicon deposition by ionized magnetron sputtering</i> (2000)
1015	RESERVED
1016	U.S. Patent No. 4,579,618 to Celestino
1017	International Publication No. WO 02/23588 to Quon
1018	International Publication No. WO 01/6300 to Johnson
1019	U.S. Patent No. 6,695,954 to Hong
1020	U.S. Patent No. 6,153,068 to Ohmi
1021	U.S. Patent No. 4,846,920 to Keller
1022	RESERVED
1023	U.S. Patent No. 5,302,882 to Miller
1024	Pinnacle Plus+ 10KW (325-650 Vdc) Master/Slave AE Bus,

	DeviceNet, MDXL User, UHF Output User Manual (March 2005)
1025	The Advanced Energy MDX Magnetron Drive, Advanced Energy Industries, Inc. (March 1993)
1026	Pinnacle 10x6 kW DeviceNet, MDXL User 5702063-C, User Manual, (May 2000)
1027-1028	RESERVED
1029	E. Dogheche, <i>Growth and optical characterization of aluminum nitride thin films deposited on silicon by radio-frequency sputtering</i> , <i>Applied Physics Letters</i> (1999)
1030	U.S. Patent No. 6,506,686 to Masuda
1031	K. Nam, <i>A study on the high rate deposition of CrN films with x controlled microstructure by magnetron sputtering</i> , <i>Surface &amp; Coatings Technology</i> (2000)
1032	D. Mattox, <i>Handbook of Physical Vapor Deposition (PVD) Processing – Film Formation, Adhesion, Surface Preparation and Contamination Control</i> (1998)
1033	U.S. Patent No. 5,830,327 to Kolenkow
1034	U.S. Patent Publication No. 2001/0041252 to Laird
1035	M. Ruske, <i>Properties of SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> layers deposited by MF twin magnetron sputtering using different target materials</i> , <i>Thin Solid Films</i> (1999)
1036	W. Sproul, <i>High-rate reactive DC magnetron sputtering of oxide and nitride superlattice coatings</i> (1998)
1037	U.S. Patent Publication No. 2003/0029563 to Kaushal
1038	U.S. Patent No. 6,627,323 to Nagaraj
1039-1040	RESERVED
1041	S. Wolf et al., <i>Silicon Processing for the VLSI Era</i> , Vol. 1 (2000)
1042	Declaration of Dr. Ingrid Hsieh-Yee
1043-1045	RESERVED
1046	U.S. Patent No. 6,657,260 to Yamazaki
1047	A. Billard, <i>Low-frequency modulation of pulsed d.c. or r.f.</i>

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