IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REALTEK SEMICONDUCTOR CORP., and TCL INDUSTRIES HOLDINGS CO., INC.

Petitioner, v.

ATI TECHNOLOGIES ULC Patent Owner.

Case No. IPR2023-00922

U.S. Patent No. 8,760,4541

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE TO PETITION

¹ Joinder with IPR2024-00366



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Cases	
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Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299 (Fed. Cir. 2006)	29
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PETITIONER'S EXHIBIT LIST

Exhibit #	Reference Name
1001	U.S. Patent 8,760,454 to Morein et al.
1002	Prosecution History of U.S. Patent 8,760,454
1003	Declaration of Hanspeter Pfister, Ph.D.
1004	Curriculum Vitae of Hanspeter Pfister, Ph.D.
1005	Lindholm 685
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1007	Amanatides
1008	Kohn
1009	Selzer [Library of Congress]
1010	Fiske
1011	IEEE – Fiske
1012	Declaration of Gordon MacPherson re Authentication of Fiske (May
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1013	IEEE – Kohn
1014	Declaration of Gordon MacPherson re Authentication of Kohn (May
	11, 2023)
1015	Initial Determination on Violation of Section 337, Certain Consumer
	Electronics and Display Devices With Graphics Processing and
	Graphics Processing Units Therein, 337-TA-932 (October 9, 2015)
1016	Selzer [University of California, Berkeley, Library]
1017	Redacted Deposition Transcript of Andrew E. Gruber, taken March
	17, 2015, in ITC Case No. 337-TA-932
1018	Declaration of Hanspeter Pfister, Ph.D.
1019	Deposition Transcript of William Mangione-Smith (5/10/2024)
1020	https://en.wikipedia.org/wiki/DirectX
1021	https://en.wikipedia.org/wiki/Unified_shader_model
1022	https://en.wikipedia.org/wiki/GeForce 8 series
1023	https://www.hardwarezone.com.sg/feature-nvidia-geforce-8800-gtx-
	gts-g80-worlds-first-dx10-gpu/embracing-unified-shader-
	architecture
1024	https://en.wikipedia.org/wiki/Radeon_HD_2000_series



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