

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS, INC.
Petitioner

v.

ATI TECHNOLOGIES ULC
Patent Owner

Case: IPR2015-00321

Patent 7,095,945

DECLARATION OF DAN SCHONFELD, PHD

Table of Contents

A.	Background And Qualifications	3
B.	Information Considered	6
I.	LEGAL STANDARDS.....	7
A.	Person Of Ordinary Skill In The Art.....	8
B.	Anticipation.....	8
C.	Obviousness.....	9
D.	Claim Construction	11
II.	TECHNOLOGY BACKGROUND	12
A.	Multiplexers and Demultiplexers.....	12
B.	Packetized Data	14
C.	MPEG Streams.....	14
1.	MPEG Program Stream (PS)	16
2.	MPEG-2 Transport Stream (TS)	17
D.	Time Shifting.....	19
E.	Clock Recovery And Timing Information	19
F.	Coded Multimedia Data And Timing Information.....	20
G.	Real-Time Applications	21
III.	THE '945 PATENT	23
A.	Background Of The '945 Patent.....	23
B.	Prosecution History (Ex. 1002).....	25
C.	Challenged Claims	27
D.	Claim Construction	27
IV.	PRIOR ART ANALYSIS	28
A.	U.S. Patent No. 6,233,389 (“Barton”)	28
1.	Claims 18 and 21 Are Anticipated By Barton	28
B.	U.S. Patent No. 6,397,000 (“Hatanaka”).....	52
1.	Claim 18 Is Obvious In View Of Hatanaka	54
2.	Claim 21 Is Anticipated By Hatanaka	68
C.	U.S. Patent No. 6,591,058 (“O’Connor”)	83
1.	Claim 18 Is Obvious Over Hatanaka In View of O’Connor	84
D.	U.S. Patent No. 5,521,922 (“Fujinama”)	89

1.	Claim 21 Is Obvious Over Fujinami	91
V.	SUPPLEMENTATION	106

I. INTRODUCTION

1. My name is Dan Schonfeld, and I have been retained by the law firm of Mayer Brown LLP on behalf of LG Electronics, Inc. as an expert in the relevant art.
2. I have been asked to provide my opinions and views on the materials I have reviewed in this case related to Ex. 1001, U.S. Patent No. 7,095,945 (“the ’945 Patent”) (“the patent-at-issue”), and the scientific and technical knowledge regarding the same subject matter before and for a period following the date of the first application for the patent-at-issue was filed.
3. I am being compensated for my work on this case at my standard consulting rate of \$500 per hour. I am also being reimbursed for all incurred expenses. My compensation has not influenced any of my opinions in this matter and does not depend on the outcome of this proceeding or any issue in it.
4. My opinion and underlying reasoning for this opinion is set forth below.

A. Background And Qualifications

5. I am currently a Professor in the Department of Electrical and Computer Engineering at the University of Illinois at Chicago. I have been elected Fellow of the Institute of Electrical and Electronics Engineers (“IEEE”) as well as Fellow of the International Society for Optics and Photonics (“SPIE”). I have also been elected University Scholar of the University of Illinois. A complete list of my publications, professional activities, and honors that I have received is fully set forth in my curriculum vitae, attached hereto as Appendix A.

6. I received my B.S. degree in Electrical Engineering and Computer Science from the University of California, Berkeley, California, and my M.S. and Ph.D. degrees in Electrical and Computer Engineering from The Johns Hopkins University, Baltimore, Maryland, in 1986, 1988, and 1990, respectively.

7. In August 1990, I joined the Department of Electrical Engineering and Computer Science at the University of Illinois, Chicago, Illinois, where I am currently a Professor in the Departments of Electrical and Computer Engineering, Computer Science, and Bioengineering. I serve as Co-Director of the Multimedia Communications Laboratory (“MCL”) and member of the Signal and Image Research Laboratory (“SIRL”). I have also served as Director of the University-Industry Engineering Research Center (“UIERC”), formerly known as the Manufacturing Research Center (“MRC”), in the College of Engineering.

8. I currently serve as Editor-in-Chief of the IEEE Transactions on Circuits and Systems for Video Technology. I have previously served as Deputy Editor-in-Chief of the IEEE Transactions on Circuits and Systems for Video Technology and Area Editor for special issues of the IEEE Signal Processing Magazine. I have also served as Associate Editor of the IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Image Processing, and IEEE Transactions on Signal Processing. I also served on the editorial board of the IEEE Signal Processing Magazine, EURASIP Journal of Image and Video Processing, and Research Letters in Signal Processing. I have served as guest editor of numerous special issues in various

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.