

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED

Petitioner

v.

REMBRANDT WIRELESS TECHNOLOGIES, LP

Patent Owner

CASE NO. IPR2020-00510

U.S. PATENT 8,023,580

DECLARATION OF JOHN VILLASENOR, PH.D.

I. INTRODUCTION AND BACKGROUND

1. My name is John Villasenor. I am a professor at UCLA. I have been retained by Qualcomm, Inc. to provide opinions in the above-captioned *inter partes* review (“IPR”) proceeding challenging U.S. Patent No. 8,023,580 (“the ’580 Patent”).

2. I am being compensated at my usual and customary rate of \$800 per hour for the time I spent in connection with this IPR. My compensation is not affected by the outcome of this IPR.

3. Specifically, I have been asked to provide my opinions regarding whether claims 2 and 59 (each a “Challenged Claim” and collectively the “Challenged Claims”) of the ’580 Patent would have been obvious to a person having ordinary skill in the art (“POSITA”) as of its claimed priority date, December 5, 1997, which I may also refer to as earliest effective filing date (“EEFD”). It is my opinion that each Challenged Claim would have been obvious to a POSITA after reviewing the prior art discussed herein.

4. I have either trained or worked in communications and digital information processing, including the relevant hardware, software, and devices, for approximately three decades. Since well before the priority date of the ’580 Patent, my work has addressed topics including communications, networking, and mobile devices and networks.

5. I received a B.S. in electrical engineering from the University of Virginia in 1985, an M.S. in electrical engineering from Stanford University in 1986, and a Ph.D. in electrical engineering from Stanford University in 1989.

6. Between 1990 and 1992, I worked for the Jet Propulsion Laboratory in Pasadena, CA, where I helped to develop techniques for imaging and mapping the earth from space. Since 1992, I have been on the faculty of the Electrical Engineering Department of the University of California, Los Angeles (UCLA). Between 1992 and 1996, I was an Assistant Professor; between 1996 and 1998, an Associate Professor; and since 1998, I have been a full Professor. For several years starting in the late 1990s, I served as the Vice Chair of the Electrical Engineering Department at UCLA. In addition to my faculty appointment in the UCLA Samueli School of Engineering, I hold faculty appointments in the Department of Public Policy within the UCLA Luskin School of Public Affairs, in the UCLA School of Law, and in the UCLA Anderson School of Management.

7. In the UCLA Samueli School of Engineering, I have taught courses on information processing and communications, addressing systems, algorithms, and devices. More specifically, on multiple occasions I have taught electrical engineering classes on communications, including addressing both the theoretical and practical considerations involved in different modulation schemes.

8. At UCLA, I have performed extensive research over the past several decades on various aspects of communications and signal processing, including the associated mobile devices and the networks and systems used in relation to those devices. My research has addressed software, algorithms, hardware, networking, protocols and other aspects of communications systems, including the tradeoffs involved in various modulation schemes. In relation to systems that include mobile devices, my research has addressed issues including communications to/from mobile devices and processing at the mobile devices and/or at other locations in a network. My work has addressed both the hardware and software aspects of systems, and has included consideration of factors such as bandwidth utilization, data rate, tolerance to noise, protocols, and power consumption.

9. I am an inventor on approximately 20 issued and pending U.S. patents in areas including signal (including image) processing, data compression, communications, and cybersecurity. I have published over 175 articles in peer-reviewed journals and academic conference proceedings. I have also been asked on multiple occasions to provide congressional testimony on technology topics.

10. In addition to my work at UCLA, I am a nonresident senior fellow at the Brookings Institution in Washington, D.C. Through Brookings, I have examined a wide range of topics at the technology/policy intersection, including cybersecurity, wireless mobile devices and systems, and artificial intelligence.

11. In addition to publishing in traditional academic venues such as engineering journals, engineering conference proceedings, and law reviews, I have published papers through the Brookings Institution and articles and commentary in broader-interest venues including Billboard, the Chronicle of Higher Education, Fast Company, Forbes, the Los Angeles Times, the New York Times, Scientific American, Slate, and the Washington Post.

12. I am also a senior fellow at the Hoover Institution at Stanford and an affiliate of the Center for International Security and Cooperation (CISAC) at Stanford. In relation to those affiliations, I have led a research project funded by the U.S. Department of Homeland Security aimed at improving cybersecurity in U.S. critical infrastructure.

13. I am also a member of the Council on Foreign Relations. I have been a member of the World Economic Forum's Global Agenda Council on Cybersecurity. I was also a member and then vice chair of the World Economic Forum's Global Agenda Council on the Intellectual Property System.

14. I also have substantial experience in early-stage technology venture capital, including in the years preceding and at approximately the same time frame as the priority date for the '580 Patent. In that work, I frequently engaged with, including performing technical due diligence on, companies working in the technical areas addressed by the '580 Patent.

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