UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner

v.

UNILOC LUXEMBOURG S.A.
Patent Owner

Case No. IPR2018-00884
Patent No. 8,539,552

DECLARATION OF DR. AVIEL RUBIN

I, Aviel Rubin, Ph. D., hereby declare the following:

I. INTRODUCTION

1. I, Aviel Rubin, Ph.D., have been retained by counsel for Petitioners as a technical expert in the above-captioned case. Specifically, I have been asked to render certain opinions in regards to the IPR petition with respect to U.S. Patent No. 8,539,552 ("the '552 patent"). I understand that the Challenged Claims are claims 1-25. My opinions are limited to those Challenged Claims.

2. My compensation in this matter is not based on the substance of my opinions or the outcome of this matter. I have no financial interest in Petitioners. I am being compensated at an hourly rate of $750 for my analysis and testimony in this case.

3. In reaching my opinions in this matter, I have reviewed the following materials:

- EX1001 – U.S. Patent No. 8,539,552 to Grabelsky et al. ("the '552 patent");
- EX1002 – File History of App. No. 10/671,375 ("'552 file history");
- EX1004 – U.S. Patent No. 6,324,279 to Kalmanek et al. ("Kalmanek")
- EX1005 – U.S. Patent No. 7,023,839 to Shaffer ("Shaffer")
- EX1006 – U.S. Patent Application Publication No. 2001/0026548 to Strathmeyer et al. ("Strathmeyer")
- EX1007 – U.S. Patent No. 7,412,598 to Gleichauf ("Gleichauf")
- EX1008 – International Telecommunication Union, General Aspects of Digital Transmission Systems, Terminal Equipments, Pulse Code Modulation (PCM) of Voice Frequencies, ITU-T Recommendation G.711 (ITU 1993)
- EX1009 – SIP: Session Initiation Protocol, RFC 2543 (IESG 1999)

A. Background and Qualifications

4. I am currently employed as Professor of Computer Science at Johns Hopkins University, where I perform research, teach graduate courses in computer science and related subjects, and supervise the research of Ph. D. candidates and other students. Courses I have taught include Security and Privacy in Computing and Advanced Topics in Computer Security. I am also the Technical Director of the Johns Hopkins University Information Security Institute, the University's focal point for research and education in information security, assurance, and privacy. The University, through the Information Security Institute's leadership, has been designated as a Center of Academic Excellence in Information Assurance by the National Security Agency and leading experts in the field. The focus of my work over my career has been computer security, and my current research concentrates on systems and networking security, with special attention to software and network security.

5. I received my Ph.D. in Computer Science and Engineering from the University of Michigan, Ann Arbor in 1994, with a specialty in computer security and cryptographic protocols. My thesis was titled "Nonmonotonic Cryptographic Protocols" and concerned authentication in long-running jobs in a networked environment.

6. After receiving my Ph.D., I began working at Bellcore in its Cryptography and Network Security Research Group from 1994 to 1996. During this period I focused my work on Internet and Computer Security. While at Bellcore, I published an article titled "Blocking Java Applets at the Firewall" about the security challenges of dealing with Java applets and firewalls, and a system that we built to overcome those challenges.

7. In 1997, I move to AT&T Labs, Secure Systems Research Department, where I continued to focus on network technologies in the context of Internet, telephony, and computer security. From 1995 through 1999, in addition to my work in industry, I served as adjunct professor at New York University, where I taught undergraduate classes on computer, network, and Internet security issues.

8. I stayed at my position at AT&T until 2003, when I left to accept a full-time academic position at Johns Hopkins University. The University promoted me to full professor with tenure in April, 2004.

9. I serve, or have served, on a number of technical and editorial advisory boards. For example, I served on the Editorial and Advisory Board for the International Journal of Information and Computer Security. I also served on the Editorial Board for the Journal of Privacy Technology. I have been Associate Editor of IEEE Security and Privacy magazine, and served as Associate Editor of ACM Transactions on Internet Technology. I am currently an Associate Editor of

the journal Communications of the ACM. I was an Advisory Board Member of Springer's Information Security and Cryptography Book Series. I have served in the past as a member of the DARPA Information Science and Technology Study Group, a member of the Government Infosec Science and Technology Study Group of Malicious Code, a member of the AT&T Intellectual Property Review Team, Associate Editor of Electronic Commerce Research Journal, Co-editor of the Electronic Newsletter of the IEEE Technical Committee on Security and Privacy, a member of the board of directors of the USENIX Association, the leading academic computing systems society, and a member of the editorial board of the Bellcore Security Update Newsletter.

10. I have spoken on network and information security and related issues at more than 50 seminars and symposia. I was founder and President of Independent Security Evaluators (ISE), a computer security consulting firm, from 2005 to 2011. In that capacity, I guided ISE through the qualification as an independent testing lab for Consumer Union, which produces Consumer Reports magazine. As an independent testing lab for Consumer Union, I managed an annual project where we tested all of the popular anti-virus products. Our results were published in Consumer Reports each year for three consecutive years. I am currently the founder and managing partner of Harbor Labs, a software and networking consulting firm.

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