Declaration of Justin Douglas Tygar,

Ph.D. Concerning the Invalidity of

U.S. Patent No. 7,552,080

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TABLE OF CONTENTS

1. INTRODUCTION 1
2. QUALIFICATIONS 2
3. MATERIALS CONSIDERED 3
4. TECHNICAL BACKGROUND AND STATE OF THE ART 4
5. SUMMARY OF OPINIONS 4
   5.1. The Prior Art Renders Obvious Claims 1-11 of the Willard Patent 4
6. UNDERSTANDING OF THE LAW 5
   6.1. Overview 5
   6.2. Person of Ordinary Skill in the Art 5
   6.3. Relevant Dates for Prior Art 6
   6.4. Obviousness 6
   6.5. Claim Construction 9
7. THE WILLARD PATENT 9
   7.1. Summary of the Willard Patent 9
   7.2. Field of the Willard Patent 13
   7.3. Level of Ordinary Skill in the Art for the Willard Patent 13
   7.4. Prior Art Disclosed in Prosecution for the Willard Patent 14
   7.5. Claim Construction for the Willard Patent 15
8. PRIOR ART TO THE WILLARD PATENT 19
   8.1. The Tengel Prior Art Reference 19
      8.1.1. Summary of Tengel 19
      8.1.2. Tengel is Prior Art to the Willard Patent 20
   8.2. The Walker I Prior Art Reference 20
      8.2.1. Summary of Walker I 20
      8.2.2. Walker I is Prior Art to the Willard Patent 21
   8.3. The Nabors Prior Art Reference 21
      8.3.1. Summary of Nabors 21
      8.3.2. Nabors is Prior Art to the Willard Patent 22
   8.4. The Walker II Prior Art Reference 22
      8.4.1. Summary of Walker II 22
      8.4.2. Walker II is Prior Art to the Willard Patent 22
   8.5. The Watson Prior Art Reference 23

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8.5.1. Summary of Watson 23
8.5.2. Watson is Prior Art to the Willard Patent 23
8.6. All of the Claims of the Willard Patent are Invalid 25
8.6.1. Claims 1-6 and 9-11 of the Willard Patent are Invalid as Obvious over Tengel, Walker I, and Nabors 25
8.6.2. Claim 7 of the Willard Patent is Invalid as Obvious over Tengel, Walker I, Nabors, and Walker II 56
8.6.3. Claim 8 of the Willard Patent is Invalid as Obvious over Tengel, Walker I, Nabors, and Watson 58
9. RESERVATION OF RIGHTS TO SUPPLEMENT 60
10. CONCLUSION 60

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1. INTRODUCTION

1.1. My name is Justin Douglas Tygar. I am a tenured, full Professor at the University of California, Berkeley, with a joint appointment in the Department of Electrical Engineering and Computer Science (Computer Science Division) and the School of Information. Prior to joining UC Berkeley in 1998, I was a tenured faculty member in the Computer Science Department at Carnegie Mellon University.

1.2. I have been retained by Kilpatrick Townsend & Stockton LLP to provide this Declaration on behalf of Askeladden L.L.C. (hereinafter "Petitioner" or "Askeladden") in connection with Askeladden's Petition for *Inter Partes* Review of U.S. Patent No. 7,552,080 (the "'080 patent" or "Willard"). I am being compensated at my usual rate of $500 per hour, plus reimbursement for expenses. My compensation is not contingent in any way upon the content of my opinion or the outcome of this proceeding.

1.3. I have prepared this Declaration for consideration by the Patent Trial and Appeals Board (PTAB). I am over eighteen years of age and I would otherwise be competent to testify as to the matters set forth herein if I am called upon to do so. My curriculum vitae is attached hereto as Exhibit A.

1.4. I have been asked to provide my opinions on the following matters: (1) the field of art pertinent to the Willard patent; (2) the level of ordinary skill in that field of art as of approximately the filing date of the application that yielded the Willard patent; (3) how a person having such ordinary skill in the art of the Willard patent would understand the contents of the specification included the claims and certain terms that are used in the claims of the patent; (4) how a person of ordinary skill in the art of the Willard patent would understand the contents of various patents and other art that was publicly available prior to the priority date of the Willard patent; and (5) whether any of those documents—alone or in combination with each other and/or the general knowledge of a person of ordinary skill in the art—disclose each and every element of any of the claims of the Willard patent. I was also asked to consider whether the claims of the Willard patent would be obvious to one of ordinary skill in the art in light of any combination of the references that I considered.

1.5. I reserve the right to supplement this Declaration after the receipt of any additional information or documents that may be produced by Patent Owner, its Counsel,

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and/or any expert or declarant.

1.6. My opinions expressed in this Declaration rely to a great extent on my own personal knowledge and recollection. However, to the extent I considered specific documents or data in formulating the opinions expressed in this Declaration, all such items are expressly referred to in this Declaration. This includes, but is not limited to, the Willard patent and its prosecution history.

1.7. In forming my opinions, I rely on my knowledge and experience in the field and on documents and information referenced in this Declaration.

2. QUALIFICATIONS

2.1. In 1982, I earned an A.B. degree in Math/Computer Science from the University of California, Berkeley, and in 1986 I earned a Ph.D. in Computer Science from Harvard University.

2.2. A copy of my curriculum vitae is attached as Exhibit A. My CV includes a list of books, book chapters, papers and other publications that I have authored or co-authored. I am an expert in software engineering, computer networks, computer and network security, and cryptography. I have taught courses in software engineering, computer security, and cryptography at the undergraduate, masters, and Ph.D. level, at both UC Berkeley and Carnegie Mellon University.

2.3. I have served in a number of capacities on government, academic, and industrial committees that give advice or set standards in security and electronic commerce.

2.4. I have co-written three books that address computer security, and one of those books has been translated into Japanese. I am presently completing a fourth book scheduled to be published in 2017 by Cambridge University Press.

2.5. I have designed cryptographic postage standards for the US Postal Service and have helped build a number of security and electronic commerce systems including: Strongbox, Dyad, Netbill, and Micro-Tesla. I have helped design the widely used DETER security networking testbed. DETER is supported by the U. S. National Science Foundation and the U.S. Department of Homeland Security. Further, I led the team that designed the SWOON overlay network used to test mobile networking in that environment.

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