UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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VISA INC. and VISA USA, INC.,
Petitioners,

v.

UNIVERSAL SECURE REGISTRY LLC,
Patent Owner.
_____

Patent No. 8,856,539
_____

DECLARATION OF JUSTIN DOUGLAS TYGAR, PH.D.

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I, Justin Douglas Tygar, declare as follows:

I.   QUALIFICATIONS

1.   My name is Justin Douglas Tygar.

2.   I am a tenured, full Professor at the University of California, Berkeley, with a joint appointment in two departments: the Department of Electrical Engineering and Computer Science (Computer Science Division) and the School of Information.

3.   Prior to joining UC Berkeley in 1998, I was a tenured professor in the Computer Science Department at Carnegie Mellon University. I have extensive research, teaching, and industry experience in the areas of computer security and electronic commerce, with a special research interest in digital rights management and privacy as it relates to those areas.

4.   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.

5.   I have helped build a number of security and electronic commerce systems. Together with my colleague at Carnegie Mellon, Marvin Sirbu, I developed NetBill, a patented electronic payment system that was licensed to CyberCash. For the U.S. Postal Service, I designed the two dimensional "Information Based Indicia" postage indicia that have now become a widely used

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standard. In addition, together with my graduate students, I designed the architecture and a foundational operating system used on a secure coprocessor, Dyad. Together with my graduate students, I designed Micro-Tesla, a light-weight cryptographic architecture that ultimately became a standard of the Internet Engineering Task Force (IETF) and is widely used in sensor webs.

6.   I served as chair of the U.S. Department of Defense's Information Science and Technology (ISAT) Study Group on Security with Privacy and was a founding board member of the Association for Computing Machinery's Special Interest Group on Electronic Commerce.

7.   I helped create the U.S. National Science Foundation Science and Technology Center TRUST, which studies issues associated with networking and security. In addition, the U.S. State Department is funding my project at U.C. Berkeley to examine the security and networking issues for communication protocols and software to support Internet freedom and allow users to bypass national firewalls in countries such as China, Iran, and Syria.

8.   Among my awards are the National Science Foundation Presidential Young Investigator Award and the Kyoto Fellowship.

9.   I have also co-written four books that address networking technology and security for networking technology, and one of those books has been translated

into Japanese. My book Secure Broadcast Communication in Wired and Wireless Networks (with Adrian Perrig) has become a standard reference.

10.   A copy of my curriculum vitae ("CV") is attached as Exhibit 1003. 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 networking, computer and network security, and cryptography. I have taught courses in software engineering, computer security, and cryptography at the undergraduate, masters, and Ph.D. levels, at both UC Berkeley and Carnegie Mellon University.

II.   SCOPE OF WORK

11.   I understand that a petition is being filed with the United States Patent and Trademark Office for *Inter Partes* Review of U.S. Patent No. 8,856,539 to Kenneth P. Weiss *et al.* (the "'539 patent," attached as Ex. 1001).

12.   I have been retained by Visa Inc. and Visa USA, Inc. (together, "Visa") to offer an expert opinion on the validity of certain claims of the '539 patent. Visa pays the consulting firm DOAR $700 per hour for my services. No part of my compensation is dependent on my opinions or on the outcome of this proceeding.

13.   I have been specifically asked to provide my opinions on claims 1-9, 16-31, 37, and 38 of the '539 patent. In connection with this analysis, I have

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