DOCKET NO.: 1033300-00304US2
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

UNIVERSAL SECURE REGISTRY, LLC,

Patent Owner.

Case IPR2018-00812

U.S. Patent No. 8,856,539

DECLARATION OF DR. VICTOR SHOUP IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW

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I, Victor Shoup, Ph.D., declare as follows:

1. My name is Victor Shoup.

2. I have been retained by Apple to provide opinions in this proceeding relating to U.S. Patent No. 8,856,539 ("'539 patent").

I. BACKGROUND

3. I received a Bachelor of Science in Computer Science and Mathematics from the University of Wisconsin at Eau Claire in 1983. I received my Doctorate in Computer Science from the University of Wisconsin at Madison in 1989. I worked as a research scientist at Bellcore from 1995 to 1997 and at IBM Research Zurich from 1997 to 2002. My work there included design of cryptographic protocols such as a new public key cryptosystem (now called the Cramer-Shoup cryptosystem) that achieved higher levels of security than were previously thought possible in a practical scheme.

4. I have been Professor of Computer Science at the Courant Institute of Mathematical Sciences at New York University since 2002 (initially as an Associate Professor, and as a Professor since 2007). I teach a variety of graduate and undergraduate courses on cryptography. Since 2012, I have also been a part-time visiting researcher at the IBM T. J. Watson Research Center in Yorktown, New York, where I collaborate with the Cryptography Research Group, which does work on a range of projects from the theoretical foundations of cryptography

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