UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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HTC Corporation and
HTC America, Inc.,
Petitioners

v.

INVT SPE LLC,
Patent Owner

_____

IPR Case No. IPR2018-01556
U.S. Patent No. 7,206,587

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DECLARATION OF PAUL S. MIN. PH.D. IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. § 311 *ET SEQ.* AND 37 C.F.R. § 42.100 *ET SEQ.* (CLAIMS 1 THROUGH 4 OF U.S. PATENT NO. 7,206,587)

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I. INTRODUCTION & SUMMARY OF OPINIONS

1. My name is Paul S. Min, Ph.D. I have been retained as a technical expert and submit this declaration on behalf of HTC Corporation and HTC America, Inc. (collectively, "Petitioners" or "HTC"), which I understand are challenging the validity of claims 1-4 ("the challenged claims") of U.S. Patent No. 7,206,587 ("the '587 patent") in a petition for *inter partes* review.

2. I have no financial interest in or affiliation with the Petitioners or the Patent Owner, which I understand is INVT SPE LLC. My compensation does not depend upon the outcome of, or my testimony in, this *inter partes* review proceeding or any litigation proceedings.

3. I have been asked to provide an opinion on the validity of the challenged claims. In my opinion, for the reasons in the following sections, the challenged claims are invalid on the following ground:

(1) Claims 1, 2, 3 and 4 are obvious under 35 U.S.C. § 103 by Padovani (PCT Application No. PCT/US98/23428) in view of Gils (W. van Gils, "Design of error-control coding schemes for three problems of noisy information transmission, storage and processing," Ph.D. dissertation, Eindhoven Univ. of Technology, Eindhoven, the Netherlands, 1988).

4. I have been informed, and agree after reviewing Exhibits 1024-1052, that W. van Gils, "Design of error-control coding schemes for three problems of noisy information transmission, storage and processing," Ph.D. dissertation, Eindhoven Univ. of Technology, Eindhoven, the Netherlands, 1988 ("Gils") was available to members of the general public, including interested members of the public, without restriction as of January 6, 1988, was catalogued by no later than March 1998, and widely disseminated to other libraries by at least 1993.

II. BACKGROUND/QUALIFICATIONS

5. Appendix A to this declaration is my curriculum vitae, which sets forth my qualifications.

6. I received a B.S. degree in Electrical Engineering in 1982, an M.S. degree in Electrical Engineering in 1984, and a Ph.D. degree in Electrical Engineering in 1987 from the University of Michigan in Ann Arbor. I received several academic honors, including my B.S. degree with honors, a best graduate student award and a best teaching assistant award during my M.S. study, and a best paper award from a major international conference for reporting results from my Ph.D. thesis.

7. After receiving my Ph.D., I worked at Bellcore in New Jersey from August 1987 until August 1990. At Bellcore, I was responsible for evolving the public switched telephone network (POTS) into a multi-services voice and data

network that incorporated packet switches, optical technologies, and wireless technologies.

8. In September 1990, I joined the faculty at Washington University in St. Louis. In July 1996, I was promoted to an Associate Professor of Electrical Engineering with tenure. I am currently a Senior Professor at Washington University of the Electrical and Systems Engineering. I have also served as the Chair of the Graduate Curriculum (2000-2002) and the Chair of the Undergraduate Curriculum (2011-2014) for the Electrical and Systems Engineering department.

9. At Washington University, I have conducted research in communication, computing, and related electronic hardware and software. My research group has pioneered a new paradigm for designing electronic circuits that can alleviate the speed and performance mismatch against optical technology. I have received several grants from the U.S. Federal Agencies, including the National Science Foundation, the Air Force Office of Scientific Research, the Defense Advanced Research Project Agency, and numerous contracts from companies and organizations around the world. Specifically related to the technology matters in this Investigation, I have researched a variety of wireless communication technologies, including CDMA, WCDMA, OFDM, FDD, SC-FDMA, and TDD. I have an extensive background and experience in each of these technologies.

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