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

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Case: IPR2018-01555

United States Patent No. 7,848,439

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DECLARATION OF DR. BRANIMIR VOJCIC

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I, **BRANIMIR VOJCIC**, hereby declare as follows:

1.   I am competent to testify, and, if called upon during an *Inter Partes* Review (IPR) proceeding, would do so. If called upon as a witness, I could competently testify to the truth of each statement herein.

2.   I was asked to provide an opinion on the Petition asserted in IPR2018-01555, regarding U.S. Patent No. 7,848,439 ('439 patent) (Ex. 1001), statements made in the Petition, and exhibits in support of the Petition, including the declaration of Dr. Zhi Ding. In particular, I was asked to provide an opinion on the Petition's Ground 1, which asserts unpatentability based on a combination of the Li patent (Ex. 1003), the Vijayan patent (Ex. 1004), and the Hashem patent (Ex. 1005).

3.   My opinion is based upon my knowledge and experience, and my review of the '439 patent, the Petition, and exhibits in support of the Petition.

I.   BACKGROUND

4.   I am an expert in wireless technology and other areas of telecommunications, signal processing, and electrical engineering. I am presently a Professor Emeritus of Engineering and Applied Science at The George Washington University. I retired from the university in May 2015, where I was a member of the faculty since September 1, 1991. In addition, I have served as a

consultant for a number of companies in the wireless communications industry in various technology areas. I have also served on numerous committees and as a reviewer and editor for several journals, conferences, and organizations.

5.   I am presently President of Xplore Wireless, LLC, a small telecommunication consulting company. I am also a co-founder, Director, CEO and CTO of LN2, a startup in the telecommunication space.

6.   I received my Diploma of Engineering, Master of Science, and Doctor of Science degrees in Electrical Engineering from the University of Belgrade in Yugoslavia in 1981, 1986, and 1989, respectively. The primary focus of my Doctor of Science studies was on Code Division Multiple Access (CDMA) and spread spectrum communications technologies.

7.   In 1991, I joined The George Washington University as an Assistant Professor and was promoted to Associate Professor and Professor in 1997 and 2000, respectively. From 2001 to 2004, I served as the Chairman of the Electrical and Computer Engineering Department at The George Washington University. During my tenure at The George Washington University, until May 2015, I taught many different courses on communications theory and networks, wireless communications, and I was a course director for a number of courses in communications. I have supervised students mostly in the areas of communications

and coding theory, wireless communications/networks, including CDMA (including IS-95, CDMA2000, WCDMA/HSDPA/HSUPA), and OFDM/LTE and have been a thesis director for a number of Doctor of Science candidates, who now have successful careers in academia, industry, and government.

8.   My research in the areas I just mentioned has been supported by the communications industry and various Government agencies, such as the Advanced Research Project Agency (ARPA), National Science Foundation (NSF), and National Security Agency (NSA). Much of this research concerns communications theory, performance evaluation, modeling wireless networks, multi-user detection, adaptive antenna arrays, and ad-hoc networks.

9.   I have authored or co-authored numerous journal and conference papers, contributed to various books, and served as a co-editor of a book on wireless communications, entitled "Multiaccess, Mobility and Teletraffic in Wireless Communications, Volume III," Kluwer Academic Publishers, Norwell, Massachusetts, 1998. My CV includes a detailed listing of my publications. Ex. 2002.

10.   I have also received awards for my work. In 1995, I received the prestigious National Science Foundation Faculty Early CAREER Development Award. The award is given annually by NSF to a select group of young professors

nationwide to promote excellence in teaching and research.

11.   I have served as a consultant for numerous companies in the wireless

communications industry in technology areas, in the areas of 2G/3G/4G mobile

technologies, Wireless LANs, new generation broadcast systems, advanced mobile

satellite systems and other aspects of modern communication systems. I have also

taught academic courses as well as short courses for the industry and government

on various aspects of communications in the areas of 2G, 2.5G, 3G, and 4G

cellular standards.

12.   I am a Senior Member of the IEEE and was an Associate Editor for

IEEE Communications Letters and Journal on Communications and Networks. I

served as a member of technical program committees, as a session organizer for

many technical conferences and workshops, and as a reviewer of technical papers

for many journals and conferences. These also include conference submissions on

"Adaptive modulation in ad-hoc DS/CDMA packet radio networks," at Proc. IEEE

GLOBECOM (Dec. 2003) and IEEE Trans. on Communications (Apr. 2006). Ex.

2002 at 7 and 11.

13.   I am a co-inventor of U.S. Patent No. 6,523,147, entitled "Method and

Apparatus for Forward Error Correction Coding for an AM In-Band On-Channel

Digital Audio Broadcasting System," US Patent No. 8,595,590 B1, entitled

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