

Filed on behalf of UUSI, LLC

By: Monte L. Falcoff (mlfalcoff@hdp.com)

Michael R. Nye (mnye@hdp.com)

HARNES, DICKEY & PIERCE, P.L.C.

5445 Corporate Drive, Ste. 200

Troy, MI 48098

Telephone: (248) 641-1600

Facsimile: (248) 641-0270

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BROSE NORTH AMERICA, INC.

and

BROSE FAHRZEUGTEILE GMBH & CO. KG, HALLSTADT

Petitioner

v.

UUSI, LLC

Patent Owner

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Case IPR2014-00416

Patent 8,217,612

DECLARATION OF DR. MARK EHSANI IN SUPPORT OF PATENT OWNER RESPONSE

## I. EDUCATION AND BACKGROUND

### I.A. SUMMARY

2. My name is Mark Ehsani. I have been retained by Patent Owner UUSI, LLC to testify as an engineering expert at the hourly rate of \$600 through Thomson Reuters. My compensation in this matter is not affected in any way by the opinions I reach or the outcome of this matter.

3. I submit this Declaration in support of Patent Owner's Response regarding the *inter partes* review of U.S. Patent No. 8,217,612 (the '612 Patent) filed in the United States Patent and Trademark Office by Brose.

4. I consider myself an expert in the field of electrical and computer engineering, specifically within the motor vehicle realm, and have been an expert in this field since before 1992. That expertise includes specific expertise in the areas of body control systems, sensorless and Hall effect-based motor control, microprocessor-based and discrete circuit logic design and programming, and safety systems, all with applications in the field of motor vehicles.

5. A copy of my curriculum vitae is provided as Exhibit 2002 to this Declaration and provides a comprehensive description of my relevant experience, including academic and employment history, publications, conference participation, and patenting activity.

6. Based on my review of the '612 Patent, the prior art cited in the Petition, the additional documents listed below, my understanding of the applicable legal standards, and my knowledge of the art, it is my expert opinion that the claims of the '612 Patent are not anticipated or rendered obvious in view of the references cited by Petitioner Brose.

#### I.B. EDUCATION

7. I have a Doctor of Philosophy degree in Electrical Engineering from the University of Wisconsin-Madison (1981).

8. I have a Master's of Science degree in Electrical Engineering from the University of Texas at Austin (1974).

9. I have a Bachelor's of Science degree in Electrical Engineering from the University of Texas at Austin (1973).

#### I.C. BACKGROUND

10. For the past 33 years, my research work has been in power electronics, motor drives, hybrid vehicles, and their control systems. I am a Professor of electrical engineering at Texas A&M University, College Station, Texas. I am Director of the Advanced Vehicle Systems Research Program and the Power Electronics and Motor Drives Laboratory at Texas A&M University.

11. I am the co-author of sixteen books on automobile power electronics, motor drives and advanced vehicle systems, including “Vehicular Electric Power Systems,” Marcel Dekker, Inc. 2003 (identifying pages attached as Exhibit 2006) and “Modern Electric Hybrid Vehicles and Fuel Cell Vehicles – Fundamentals, Theory, and Design”, CRC Press, 2004. I am the author of over 350 publications in motor drives, advanced vehicle systems, pulsed-power supplies, high-voltage engineering, and power electronics. I am an inventor on more than 30 granted or pending US and EU patents related to automotive power and propulsion systems and their subsidiary technologies.

12. In 2005 I was elected as a Fellow of the Society of Automotive Engineers (SAE). I was selected for the IEEE Vehicular Society 2001 Avant Garde Award for “Contributions to the theory and design of hybrid electric vehicles.” In 2004 I was elected to the Robert M. Kennedy endowed Chair in Electrical Engineering at Texas A&M University. In 2003 I was selected for the IEEE Undergraduate Teaching Award “For outstanding contributions to advanced curriculum development and teaching of power electronics and drives.”

13. I am the founder of the IEEE Vehicle Power and Propulsion Conference (VPPC), which is an annual international conference that has been held continuously for the past 15 years all over the world and brings together experts

Declaration of Dr. Mark Ehsani in Support of Patent Owner Response in  
IPR2014-00416 for U.S. Patent 8,217,612

and technologies related to vehicle power systems and propulsion systems and their components. I am also the founding chairman of the IEEE Vehicular Technology Society (VTS) Vehicle Power and Propulsion Committee, which is the organizing committee of the VPPC.

14. In 2002 I was elected to the Board of Governors of the Vehicular Technology Society (VTS). I serve on the editorial board of several technical journals and am the associate editor of IEEE Transactions on Industrial Electronics and IEEE Transactions on Vehicular Technology. I am a Fellow of IEEE, an IEEE Industrial Electronics Society and Vehicular Technology Society Distinguished Speaker, and an IEEE Industry Applications Society and Power Engineering Society Distinguished Lecturer. I am a registered professional engineer in the State of Texas. I am the recipient of the Prize Paper Awards in Static Power Converters and motor drives at the IEEE-Industry Applications Society 1985, 1987, and 1992 Annual Meetings.

## II. INFORMATION RELIED ON

15. I have reviewed a variety of documents in preparing this Declaration, and have relied on the following for my opinion:

- U.S. Patent No. 8,217,612, Ex. 1005 (“the ‘612 Patent”)
- U.S. Patent No. 7,579,802, Ex. 2007 (“the ‘802 Patent”)

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