UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.
Petitioner

v.

UNILOC LUXEMBOURG S.A.
Patent Owner

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Patent No. 7,944,353
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DECLARATION OF DR. KENNETH FYFE

I, Kenneth Fyfe, hereby declare the following:

I.   BACKGROUND AND QUALIFICATIONS

1.   My name is Kenneth Fyfe and I am over 21 years of age and otherwise competent to make this Declaration. I make this Declaration based on facts and matters within my own knowledge and on information provided to me by others.

2.   I have been retained as an expert in this matter by Counsel for Apple Inc. to provide my independent opinions on certain issues requested by Counsel for Petitioner relating to the accompanying petition for *Inter Partes* Review of U.S. Patent No. 7,944,353 ("the '353 Patent"). My compensation in this matter is not based on the substance of the opinions rendered here.

3.   I have summarized in this section my educational background, career history, and other relevant qualifications. I have also attached a current version of my curriculum vitae as **Appendix A**. It lists over 90 articles, conference presentations and technical reports that I have authored or co-authored in these areas. My research has been funded in excess of 2 million dollars by a variety of grants awarded by both federal and provincial governments and from private industry.

4.   I have been awarded a total of 11 patents in various countries, including the United States, Canada, Germany, France, Great Britain, Finland and Belgium, issued from the period of 1999 to 2006. These patents are primarily in

the field of motion analysis and exercise monitoring. My first patent was U.S. Patent No. 5,955,667, entitled "Motion Analysis System." It issued on September 21, 1999, claimed priority to an October 11, 1996 provisional application, and was directed to the use of accelerometers to measure motion, for example a body-worn device that determined the speed and distance travelled of a runner. This concept was commercialized by a company that I cofounded (Dynastream Innovations, as mentioned below) and has sold millions of units around the world.

5.   Since January 2014, I have been working for 4iiii Innovations. For almost four years, I was the Director of Algorithms. However since December 1, 2017, I am now the Managing Director for our SaaS division. Prior to 2014, I was a professor at the Engineering Transfer Program at MacEwan University in Edmonton, Alberta, Canada, where I had taught since 2010. I was a faculty member at the University of Alberta where I worked as a professor in Mechanical Engineering from 1989 to 2003.

6.   I received my Ph.D. in Mechanical Engineering from the University of Waterloo in 1986 specializing in vibration, acoustics and signal processing. I obtained my Master of Science in Mechanical Engineering from the University of Alberta in 1983 specializing in vibration. My Bachelor of Science in Mechanical Engineering was obtained from the University of Alberta in 1980.

7.   Between 1986 and 1989, I did post-doctoral research at the Katholieke University of Belgium and worked for a private company, Dynamic Engineering, performing vibration, acoustics and signal analysis on automotive, rail and aerospace structures.

8.   Then during the period from 1989 to 2003, I was employed as a professor in Mechanical Engineering performing teaching, research and administrative duties. My research areas of interest included biomedical sensors, motion analysis, and acoustics. During this time, I developed an inertial device to measure the speed and distance of a person walking, jogging or running. This device was a small pod with accelerometers, processor and radio, attached to a shoe, which computes the kinematics of the person and transmits the resulting information to the user. I began development in 1994 and had developed a prototype of the device by 1995.

9.   I cofounded Dynastream Innovations to commercialize this technology in 1999. In 2003, I left the university to work with Dynastream in product development. In 2006, Garmin purchased Dynastream and I continued to work there until 2007.

10.   In 2009 and 2010, I worked for the NeuroScience Department at the University of Alberta applying our inertial methodology to assistive technologies. From 2010 to 2013, I worked at MacEwan University as a professor involved in

teaching and research in Engineering. Since January 2014, I have been working for

4iiii Innovations developing personal measurement devices that involve inertial

sensors, strain gauges and signal processing.

11.   As part of my work in connection with this proceeding, I have

reviewed the following materials:

- U.S. Patent 7,944,353 B1 to Grim III et al. (*'353 Patent*) (Ex. 1001)
- File History of U.S. Patent 7,944,353 to Grim III et al. (*'353 Patent File History*) (Ex. 1002)
- U.S. Patent 6,028,514 to Lemelson (*Lemelson*) (Ex. 1003)
- U.S. Patent 6,847,892 to Zhou et al. (*Zhou*) (Ex. 1004)
- U.S. Patent 3,051,165 to Kompelien (*Kompelien*) (Ex. 1006)
- U.S. Patent 3,639,907 to Greatbatch (*Greatbatch*) (Ex. 1007)
- U.S. Patent 3,769,974 to Smart (*Smart*) (Ex. 1008)
- U.S. Patent 5,333,616 to Mills (*Mills*) (Ex. 1009)
- U.S. Patent 6,614,348 to Ciccolo (*Ciccolo*) (Ex. 1010)
- U.S. Patent 6,487,442 to Wood (*Wood*) (Ex. 1011)
- U.S. Patent 6,579,231 to Phipps (*Phipps*) (Ex. 1012)

II.   LEGAL FRAMEWORK

A.   Obviousness

12.   I am a technical expert and do not offer any legal opinions. However,

counsel has informed me as to certain legal principles regarding patentability and

related matters under United States patent law, which I have applied in performing

my analysis and arriving at my technical opinions in this matter.

13.   I have been informed that a person cannot obtain a patent on an

invention if the differences between the invention and the prior art are such that the

subject matter as a whole would have been obvious at the time the invention was

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