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.

TRACBEAM, LLC,

Patent Owner.

Patent No. 7,525,484

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Inter Partes Review No. _____

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DECLARATION OF KEVIN S. JUDGE

I, Kevin S. Judge, make this declaration in connection with the proceeding identified above.

I. INTRODUCTION

1. I have been retained by counsel for Apple Inc. ("Petitioner") as a technical expert in connection with the proceeding identified above. I submit this declaration in support of Apple, Inc.'s Petition for *Inter Partes* Review of United States Patent No. 7,525,484 ("the '484 patent").

2. I am being paid at an hourly rate for my work on this matter. I have no personal or financial stake or interest in the outcome of the present proceeding.

II. QUALIFICATIONS

3. I am currently employed as a senior engineer at John Deere in the Advanced Engineering group designing the next generation of Global Navigation Satellite System (GNSS) receivers for precision farming. I hold a Bachelor of Science degree in Mathematics, and I am the owner of Judge Software Systems, Inc., which provides consulting services for wireless communication and location.

4. I have been designing and implementing systems for wireless communication and location for the past 25 years.

5. In particular, from 1987 to 1993 I was a programmer and analyst at Magnavox Advanced Products Division designing and implementing 1990's core

GPS software. As part of my role I worked on the navigation Kalman filter and the receiver tracking control system.

6.   From 1993 to 1995, I was a software engineer and analyst at Interstate Electronics Corporation, where I was responsible for the design and development of the navigation processor for an aircraft navigation management system. My responsibilities included writing the requirements for and participating in the design, coding, and testing of all aspects of the GPS navigation code.

7.   From 2000 to 2004, I was the Senior Vice President of Software and Systems at In-Sync Interactive management Company, where I designed and managed the creation of a complete wireless TDMA data network, including Internet client/server software and the base station and endpoint modems. I also designed the wireless protocol for robust communication.

8.   From 1996 to 2009, at Greenfield Associates, I designed and managed the development of a GPS traffic preemption system, including the development of a low cost differential base station and a TDMA scheme for data transfer. I also implemented a precise golf ranging system using locally broadcast differential corrections.

9.   From 2004 to 2009, I was an Engineering Manager at NorBelle, LLC, where I designed and contributed to the implementation of a real time mobile-to-mobile tracking application for assisted GPS mobile phones. The system included

an Internet based back-end server over which a proprietary messaging system was hosted. I designed the accuracy enhancing technology using GPS and cellular trilateration critical to the usability of the application.

10.   From 1999 to 2012, I represented SiRF Technology, Inc. in the 3GPP and 3GPP2 standards committees helping to shape the standards for location services in CDMA and GSM/UMTS. I also served as the chairman for CDMA location services standards committee. The 3GPP2 standards body, a sub-working group for Location Services, is an international consortium of individuals representing companies interested in developing standards for mobile location technology. As chairman I oversaw the development of the IS-801 A-1 specification used today by all CDMA mobile phones to receive location assistance for both regulatory and commercial systems.

11.   From 2008 to 2012, I was one of the three founding members of Integrated Positioning, LLC, where I designed, built, and integrated a location platform for a WiMax Network. I designed the backend systems to facilitate the needs of the location platform to seed AGPS solutions for E-911 integration.

12.   From 2011 to 2013, at Level8, I designed, implemented, and administered a Rails 3 server to facilitate a mobile-to-mobile tracking application.

13. From 2012 to 2014, I represented Broadcom in the Indoor Location Alliance (ILA), 3GPP, and OMA, drafting the architecture for indoor location standardization. I was elected to the board of directors for the ILA.

14. As discussed, I was recently a charter board member of the Indoor Location Alliance, and in the early 2000's, I was the Chairman of the location services sub-committee of the 3GPP2 telecommunications organization during the drafting of the IS-801A-1 specification that defines how GPS and cellular location operate on CDMA networks. I have also spent years as a contributing member of location standards in the 3GPP organization that largely parallels 3GPP2, but for GSM, UMTS, and now LTE networks. Attached as Appendix A is a copy of my curriculum vitae.

III. MATERIALS CONSIDERED

15. In preparing this declaration, I have reviewed, among other things, the following materials: (a) the '484 patent and its prosecution history; (b) U.S. Patent No 5,604,765 to Bruno; (c) U.S. Patent No. 5,602,903 to LeBlanc et al.; (d) U.S. Patent No. 5,936,572 to Loomis; (e) U.S. Patent No. 4,903,212 to Yokouchi et al.; and (f) the Petition for Inter Partes Review of the '484 patent to which my declaration relates.

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