IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Cisco Systems, Inc.	§	Petition for *Inter Partes* Review
	§	of U.S. Patent No. 7,525,484
v.	§	
	§	Issued: April 28, 2009
TracBeam, LLC	§	
	§	Title: "Gateway and Hybrid Solutions
	§	for Wireless Location"

Declaration of Dr. William Michalson

Under 37 C.F.R. § 1.68

I, Dr. William Michalson, do hereby declare:

1. I am making this declaration at the request of Cisco Systems, Inc., in the matter of the Inter Partes Review of U.S. Patent No. 7,525,484 ("the '484 Patent") to Dupray et al.

2. I am being compensated for my work in this matter. My compensation in no way depends upon the outcome of this proceeding.

3. In the preparation of this declaration, I have studied:

a) the '484 Patent, CSCO-1001, and

b) the prosecution history of the '484 Patent, CSCO-1002, and

c) the prior art references discussed below.

4. In forming the opinions expressed below, I have considered:

a) the documents listed above,

b) the additional documents and references cited in the analysis below,

c) the relevant legal standards, including the standard for obviousness provided in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) and any additional authoritative documents as cited in the body of this declaration, and

d) my knowledge and experience based upon my work in this area as described below.

Qualifications and Professional Experience

5. My qualifications are set forth in my curriculum vitae, a copy of which is submitted as Exhibit CSCO-1004.

6. I received a Ph.D. in Electrical Engineering from the Worcester Polytechnic Institute ("Worcester") in 1989. I also received a Master of Science degree in Electrical Engineering in 1985 from Worcester, and a Bachelor of Science Degree in Electrical Engineering in 1981 from Syracuse University.

7. From 1981 to 1991, I worked for Raytheon. At this company, I held a variety of positions from Engineer in multiple departments to the Engineer of Design and Development, the highest title available for my level of education and experience. During that time, I worked on a variety of projects involved with hardware and software design and debugging. One of those projects was the design and debugging of vector displays which were used in air traffic control applications. My other projects involved development and design of real-time

computer systems intended for long-duration spaceborne applications, simulation models that predicted system performance, and use of neural networks to detect presence of objects in high clutter environments as well as a number of projects involving the design of hardware and software for terrestrial and satellite-based communications systems.

8. In 1985, I was one of two people awarded an Aldo Miccioli Fellowship, allowing me to pursue my Ph.D. between 1985 and 1988.

9. I am currently employed as a professor at the Department of Electrical and Computer Engineering at Worcester Polytechnic Institute. I have worked for Worcester Polytechnic Institute since 1991, starting as an Adjunct Assistant Professor and eventually being promoted to full tenured Professor. I also hold collaborative appointments as a Professor in the Computer Science Department, the Mechanical Engineering Department, and the Robotics Engineering Program.

10. I have taught numerous courses in navigation, robotics, computer architecture, and systems engineering, including a course called "Fundamentals of Navigation Systems" and a course on mobile robot navigation and localization. In these courses, students are introduced to the different types of navigation systems and methods for interpreting sensor data for navigation system errors. We explore a variety of case studies in this course, including some related to differential and assisted GPS. Additionally, I have advised many undergraduate and graduate

projects involving the hardware and software design of systems for navigation and communications.

11. Since 1992, GPS and GPS technologies have constituted the bulk of my research at Worcester Polytechnic Institute. I directed the Center for Advanced Integrated Radio Navigation which focused on hybrid techniques for navigation in both indoor and outdoor environments. This laboratory, currently named the Robot Communications and Navigation Laboratory continues to focus on communications and navigation for autonomous air, land and sea vehicles.

12. In 1994, I co-authored a book chapter called "An Approach for Implementing a Reconfigurable Optical Interconnection Network for Massively Parallel Computers," in *Optical Interconnection - Foundations and Approaches,* which was published that same year.

13. In 1995, I started receiving grant funding for my research related to Global Positioning Systems. This included a $200,000 Supplemental Funding I grant for research entitled “Integrity of the Global Positioning System,” for which I served as the co-Principal Investigator.

14. In 1996, I received the *ION Best Paper Award – GPS-96* for my paper titled “A GPS-Based Hazard Detection and Warning System.” This paper described a remote hazard detection system that used GPS and radio communication technologies to identify hazards to an engineer operating a freight

train. For the same paper, I came in first place for the Electrical and Computer Engineering Department Major Qualifying Projects Award for my *GPS Hazard Detector*.

15. I have published extensively in the fields of GPS, geolocation and navigation. Below is a list of my papers that were published in the 1995 timeframe, a year prior to the earliest priority date of the '484 Patent:

- J. Bernick and W. R. Michalson, "UDSRAIM: An Innovative Approach to Increasing RAIM Availability," ION GPS 95, 8th International Meeting of the Satellite Division of the Institute of Navigation, Sep 12-15, Palm Springs, CA., pp. 1965-1973, 1995;
- W. R. Michalson, D. B. Cox, and H. Hua, "GPS Carrier-Phase RAIM," ION GPS 95, 8th International Meeting of the Satellite Division of the Institute of Navigation, Palm Springs, CA., pp. 1975-1984, Sep 12-15, 1995;
- D. B. Cox and W. R. Michalson, "Use of Uncorrected GPS Carrier Phase Measurements for Incremental RAIM with WAAS," ION 51st Annual Meeting, Jun 5-7, Colorado Springs, CO., pp. 515-520, 1995;
- W. Michalson, et. al., "RAIM Availability for Augmented GPS-Based Navigation Systems," ION GPS-94, 7th International Meeting of the Satellite Division of the Institute of Navigation, pp. 587-95, Sep 20-23, 1994; and
- V. G. Virball, W. Michalson, et. al., "A GPS Integrity Channel Based Fault Detection and Exclusion Algorithm Using Maximum Solution Separation," Proceedings of the 1994 IEEE Position Location and Navigation Symposium (PLANS-94), pp. 747-54, Las Vegas, Apr 11-15, 1994.

16. In 1995 I founded a company called Research Associates, LLC. Through Research Associates, I perform engineering and litigation related

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