

**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.

OPTIS WIRELESS TECHNOLOGY, LLC  
Patent Owner.

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Case IPR2020-00466  
Patent No. 8,411,557

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**DECLARATION OF PROFESSOR VIJAY MADISETTI IN SUPPORT OF  
PATENT OWNER'S PRELIMINARY RESPONSE**

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U.S. Patent and Trademark Office  
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Alexandria, VA 22313-1450

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## **I. Introduction**

1. My name is Dr. Vijay K. Madiseti. I am a Professor of Electrical and Computer Engineering at Georgia Tech, in Atlanta, GA. In particular, I have been asked to provide very targeted explanations regarding U.S. Pat. No. 8,411,557 ("the '557 patent") and the prior art references asserted against it, in support of the Patent Owner's Preliminary Response. If I do not specifically respond to a statement or topic in the Petition or the declarations, that does not mean I agree with it, only that because of the procedural posture at this stage of the IPR proceeding, I have not been asked to comment on them.

2. My qualifications can be found in my Curriculum Vitae, which includes a complete list of my publications, and is attached as Exhibit A. Some of my background and experience that qualifies me to offer the opinions offered in this declaration set forth as an expert in the technical issues in this case are as follows.

3. I received my Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering at the Indian Institute of Technology (IIT) in Kharagpur, India, in 1984. I obtained my Ph.D. in Electrical Engineering and Computer Science at the University of California, Berkeley, in 1989. I received the Demetri Angelakos Outstanding Graduate Student Award from the University of

California, Berkeley, and the IEEE/ACM Ira M. Kay Memorial Paper Prize in 1989.

4. I now am a tenured Professor in Electrical and Computer Engineering at Georgia Tech and currently serve as its representative to ETSI/3GPP. I am knowledgeable and familiar with wireless communications, microprocessor architecture, hardware, RF, cellular networks, ASIC design, computer engineering, embedded systems, digital signal processing, and associated software and firmware design for wireless and telecommunications terminals and base stations in general and ETSI/3GPP/3GPP2 standards based cellular architecture and infrastructure in particular. I also am familiar with ETSI protocols and procedures.

5. I have created and taught undergraduate and graduate courses in hardware and software design for signal processing and wireless communication circuits at Georgia Tech for the past twenty years. I also have supervised the Ph.D. dissertations of over twenty engineers in the areas of computer engineering, signal processing, communications, rapid prototyping, and system-level design methodology, of which five have resulted in thesis prizes or paper awards. I also have graduated more than 20 Ph.D. students that now work as professors or in technical positions around the world.

6. Additionally, I have been active in the areas of wireless communications, digital signal processing, integrated circuit design (analog and

digital), software engineering, system-level design methodologies and tools, and software systems.

7. I have been the principal investigator ("PI") or co-PI in several active research programs in these areas, including DARPA's Rapid Prototyping of Application Specific Signal Processors, the State of Georgia's Yamacraw Initiative, the United States Army's Federated Sensors Laboratory Program, and the United States Air Force Electronics Parts Obsolescence Initiative. I have received an IBM Faculty Award and NSF's Research Initiation Award.

8. I have designed several specialized computer and communication systems over the past two decades at Georgia Tech for tasks such as wireless audio and video processing and protocol processing for portable platforms, such as cell phones and PDAs. I have worked on designing systems that are efficient from performance, size, weight, area, and thermal considerations.

9. I have developed courses and classes for the industry on these topics, and many of my lectures in advanced computer system design, developed under the sponsorship of the United States Department of Defense in the late 1990s, are available for educational use at <http://www.eda.org/rassp> and have been used by several U.S. and international universities as part of their course work.

10. I have been working in the area of wireless communications and signal processing, since the early 1980s. Some of my recent publications in the

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