UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC., Petitioner

v.

QUALCOMM INCORPORATED,
Patent Owner

Case IPR2018-01279 Patent No. 7,844,037

DECLARATION OF KEVIN JEFFAY, PH.D.



TABLE OF CONTENTS

	P	age
I	INTRODUCTION	4
A.	Background	4
II.	UNDERSTANDING OF THE LAW	7
A. B.		
C.		9
III.	LEVEL OF ORDINARY SKILL IN THE ART	16
IV.	THE '037 PATENT	18
V. (CLAIM CONSTRUCTION	19
А. В.		
VI. SUMMARY OF REFERENCES CITED IN THE PETITION4		
В. С.	,	40 40
VII. CHA	PETITIONER FAILS TO DEMONSTRATE THAT ANY OF THE ALLENGED CLAIMS ARE UNPATENTABLE	41
	PETITIONER FAILS TO DEMONSTRATE THAT THE COMBINATION OF MAKELA AND MORAN DISCLOSES EVERY LIMITATION OF INDEPENDENT CLAIM 1 (GROUNDS 1A AND 1B: CLAIMS 1-14 AND 16-18)	
C.	COMPUTING DEVICE IS ENABLED FOR RECEIVING THE MESSAGE," AS DISCLO IN CLAIM 7 (GROUND 1A: CLAIMS 7-8; GROUND 1B: CLAIMS 7-11)	59
VIII	. WRITTEN DESCRIPTION SUPPORT FOR SUBSTITUTE CLAIMS	65
IV	CONCLUCION	70



I, Kevin Jeffay, declare as follows:

- 1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters contained herein.
- 2. I have been retained as a technical expert on behalf of Patent Owner Qualcomm Incorporated in connection with the *inter partes* review ("IPR") of U.S. Patent No. 7,844,037 ("the '037 Patent," APPLE-1001). I understand that Apple Inc. ("Petitioner" or "Apple") has filed two petitions (IPR2018-01279 ("the 1279 Petition" or "the 1279 Pet.") and IPR2018-1280 ("the 1280 Petition" or "the 1280 Pet."), collectively "Petitions") for *inter partes* review of Claims 1-14 and 16-18 of the '037 Patent ("the Challenged Claims"). I am being compensated for the time that I spend on this matter, but my compensation is not dependent on and in no way affects the substance of my statements in this declaration.
- 3. I submit this declaration in support of Qualcomm's Patent Owner Responses to Apple's petitions. I reserve the right to supplement my opinions should I be requested to provide additional analysis in connection with the patentability of the Challenged Claims. As part of my work on this declaration, I have reviewed the 1279 and 1280 Petitions and the supporting exhibits, the '037 Patent, the prosecution history of the '037 Patent, the prior art asserted by Petitioner, and any other materials identified in this declaration.



I. <u>INTRODUCTION</u>

4. My relevant qualifications, including my educational background and career history is summarized below. A copy of my curriculum vitae, which includes a more detailed enumeration of my background, experience, patents, and publications, is attached as EX-2005.

A. Background

- 5. I am a tenured professor in the Department of Computer Science at the University of North Carolina at Chapel Hill where I currently hold the position of Gillian T. Cell Distinguished Professor of Computer Science. I also currently serve as the Chairman of the Department. I have been a faculty member at UNC since 1989.
- 6. I received a Ph.D. in computer science from the University of Washington in 1989. Before that I received a M.Sc. degree in computer science from the University of Toronto in 1984, and a B.S. degree with Highest Distinction in mathematics from the University of Illinois at Urbana-Champaign in 1982.
- 7. I have been involved in the research and development of computing systems for over 35 years. I have been a faculty member at the University of North Carolina since 1989 where I perform research and I teach in the areas of computer networks, distributed systems, computer supported cooperative work, real-time systems, operating systems, multimedia networking, and network management and performance evaluation, among others.



- 8. Relevant to this matter is the fact that throughout much of the 1990s I was actively involved in variety of research projects that collectively sought to create a comprehensive computing and communications environment that enabled distributed groups of professionals to work together effectively, both synchronously and asynchronously, while being geographically distributed. This research included work on user interface design, mobile computing, as well as network and operating system support for real-time continuous media applications such as voice, video, and data conferencing (e.g., real-time screen sharing). Much of this work was performed jointly with industry partners such as Intel, IBM, Cabletron, and Digital Equipment Corporation.
- 9. For example, starting in 1991, in collaboration with IBM and Intel my research group constructed and operated one of the first Internet videoconferencing systems. We also developed a data conferencing, "shared window system" that was functionally and visually equivalent to today's Cisco's WebEx and Citrix's GoToMeeting screen sharing products and services. Part of this work involved the development of collaboration-support applications for portable computers such as pen computers (an early form of a personal digital assistant, or PDA). This particular sub-project involved the development of user interfaces for mobile computing devices. In addition, I have previously developed a variety of user interfaces for a number of imbedded systems such as controllers used in a manufacturing context.
 - 10. I have authored or co-authored over 100 articles in peer-reviewed



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