

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

**DECLARATION OF EREZ ZADOK, PH.D.  
IN SUPPORT OF PETITION FOR INTER PARTES REVIEW OF  
U.S. PATENT 9,189,437**

Apple 1003  
IPR2017-00156

## Table of Contents

I.	Introduction.....	1
II.	Qualifications.....	2
III.	My understanding of claim construction.....	8
IV.	My understanding of obviousness.....	9
V.	Level of ordinary skill in the art.....	10
VI.	Background of the technologies disclosed in the '437 patent.....	11
	A. Device emulation.....	11
	B. Hard disk interface technologies.....	17
	C. Operating systems and file systems.....	22
VII.	Claim construction.....	27
VIII.	Ground 1: The combined system of Moriyasu and Ousley renders claims 1, 5, 6, 9, 11, 12–16, 30, 32, and 34 obvious.....	27
	A. Overview of Moriyasu and Ousley.....	27
	B. The combined system of Moriyasu and Ousley renders independent claim 1 obvious. 31	
	1. The combined system of Moriyasu and Ousley teaches the preamble: “ <i>an analog data generating and processing device (ADGPD).</i> ”.....	31
	2. The combined system of Moriyasu and Ousley teaches the ADGPD architecture elements.....	32
	a) The combined system of Moriyasu and Ousley teaches “ <i>an input/output (i/o) port.</i> ”.....	33
	b) The combined system of Moriyasu and Ousley teaches “ <i>a program memory.</i> ” ..	33
	c) The combined system of Moriyasu and Ousley teaches “ <i>a data storage memory.</i> ” 34	
	d) The combined system of Moriyasu and Ousley teaches “ <i>a processor operatively interfaced with the I/O port, the program memory and the data storage memory.</i> ” 35	
	3. The combined system of Moriyasu and Ousley teaches the acquisition and processing limitations of independent claim 1.....	38
	a) The combined system of Moriyasu and Ousley teaches the acquisition limitation [1E.1]. ..	39
	b) The combined system of Moriyasu and Ousley teaches the processing limitation [1E.2]. ..	43
	4. The combined system of Moriyasu and Ousley teaches the automatic recognition limitation of independent claim 1.....	45

a)	The combined system of Moriyasu and Ousley teaches the automatic recognition operation [1F.1].....	46
b)	The combined system of Moriyasu and Ousley teaches the end user requirements [1F.2].....	54
c)	The combined system of Moriyasu and Ousley teaches the automatic recognition data element requirements [1F.3]. .....	58
5.	The combined system of Moriyasu and Ousley teaches the file transfer limitation of independent claim 1.....	63
a)	The combined system of Moriyasu and Ousley teaches the recited automatic file transfer process [1G.1, 1G.2].....	64
b)	The combined system of Moriyasu and Ousley teaches the emulation and user requirement component of the file transfer limitation [1G.3, 1G.4].....	69
C.	The combined system of Moriyasu and Ousley renders claim 5 obvious.....	70
D.	The combined system of Moriyasu and Ousley renders claim 6 obvious.....	71
E.	The combined system of Moriyasu and Ousley renders claim 9 obvious.....	72
F.	The combined system of Moriyasu and Ousley renders claim 11 obvious.....	74
G.	The combined system of Moriyasu and Ousley renders claim 12 obvious.....	77
H.	The combined system of Moriyasu and Ousley renders claim 13 obvious.....	78
I.	The combined system of Moriyasu and Ousley renders claim 14 obvious.....	80
J.	The combined system of Moriyasu and Ousley renders claim 15 obvious.....	83
K.	The combined system of Moriyasu and Ousley renders claim 16 obvious.....	84
L.	The combined system of Moriyasu and Ousley renders claim 18 obvious.....	84
M.	The combined system of Moriyasu and Ousley renders claim 30 obvious.....	85
N.	The combined system of Moriyasu and Ousley renders claim 32 obvious.....	87
O.	The combined system of Moriyasu and Ousley renders claim 34 obvious.....	89
IX.	Ground 2: The combination of Moriyasu, Ousley, and Williams renders claims 4 and 10 obvious.....	90
A.	The combination of Moriyasu, Ousley, and Williams renders claim 4 obvious.....	90
B.	The combination of Moriyasu, Ousley, and Williams renders claim 10 obvious.....	92
X.	The challenged claims of the '437 patent are not entitled to priority benefit as a continuation to the abandoned March 2005 application. ....	93
XI.	Conclusion. ....	95

## **I. Introduction.**

I, Dr. Erez Zadok, declare as follows:

1. I have been retained on behalf of Apple Inc. for the above-captioned *inter partes* review proceeding. I understand that this proceeding involves U.S. Patent No. 9,189,437 (“the ’437 patent”) titled “Flexible Interface for Communication Between a Host and an Analog I/O Device Connected to the Interface Regardless the Type of the I/O Device” by Michael Tasler, and that the ’437 patent is currently assigned to Papst Licensing GmbH & Co. KG.

2. In preparing this declaration, I have reviewed and am familiar with all the references cited herein.

3. The ’437 patent describes an interface device that “simulates, both in terms of hardware and software, the way in which a conventional input/output device functions, preferably that of a hard disk drive.” (Ex. 1001, ’437 patent, 4:16–20.) I am familiar with the technology described in the ’437 patent as of its August 24, 2006 filing date and its claimed March 4, 1997 priority date.

4. I have been asked to provide my independent technical review, analysis, insights, and opinions regarding the ’437 patent and the references that form the basis for the four grounds of rejection set forth in the Petition for *Inter Partes* Review of the ’437 patent.

## II. Qualifications.

5. As indicated in my *curriculum vitae*, attached as Exhibit 1004, I am a Professor in the Computer Science Department at Stony Brook University (part of the State University of New York (“SUNY”) system). I direct the File Systems and Storage Lab (FSL) at Stony Brook’s Computer Science Department. My research interests include file systems and storage systems, operating systems, energy efficiency, performance and benchmarking, information technology and system administration, security, networking, compilers, and software engineering.

6. I studied at a professional high school in Israel, focusing on electrical engineering (“EE”), and graduated in 1982; for my final high-school EE project, I developed a system and custom protocol to exchange data between a Commodore CBM-9000 6502-processor-based personal-computer and a custom-built Intel 8080 processor based embedded system. I spent one more year at the high school’s college division, receiving a special Certified Technician’s degree in electrical engineering. I then went on to serve in the Israeli Defense Forces for three years (1983–1986). I received my Bachelor of Science degree in computer science (“CS”) in 1991, my Master’s degree in CS in 1994, and my Ph.D. in CS in 2001— all from Columbia University in New York.

7. In 1981, while still in high school studying electrical engineering, I became the lab manager for a newly established computer lab. During that time, I

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.