

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

YAMAHA CORPORATION OF AMERICA

PETITIONER

v.

BLACK HILLS MEDIA, LLC

PATENT OWNER

CASE NO. IPR2013-00598

U.S. PATENT 8,214,873

DECLARATION OF GARETH LOY, D.M.A.

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION AND QUALIFICATIONS	1
II. RELEVANT LEGAL STANDARDS	5
III. BACKGROUND OF THE PROCEEDING.....	8
IV. DEFINITION OF THE PERSON OF SKILL IN THE ART.....	9
V. THE STATE OF THE PRIOR ART	10
VI. THE ‘873 PATENT.....	16
VII. OPINION ON CLAIM CONSTRUCTION OF THE TERM “PLAYLIST” OF THE ‘873 PATENT	22
VIII. THE PRIOR ART OF THE INSTITUTED GROUNDS.....	26
A. United States Patent Application 2002/0087996 to Bi	26
B. United States Patent 6,622,018 to Erikson	35
C. United States Patent Application 2003/0045955 to Janik.....	42
IX. THE PRIOR ART COMBINATIONS DO NOT RENDER THE ‘873 CLAIMS OBVIOUS	43
A. There Is No Motivation To Combine Bi and Erikson, and Bi, Erikson and Janik.....	44
B. The Combination Of Bi In View Of Erikson Would Yield an Inoperable System, and, Therefore Does Not Render the ‘873 Patent Obvious	49
C. The Combination of Bi and Erikson Fails To Disclose Material Limitations of the ‘873 Patent Claims	62
D. The Combination of Bi, Erikson and Janik Does Not Render Claims 13 and 42 Obvious	68

I. INTRODUCTION AND QUALIFICATIONS

1. I have been retained by counsel for Patent Owner, Black Hills Media, LLC (“Patentee”) to provide opinions in connection with *Inter Partes* Review No. IPR2013-00598 of U.S. Patent No. 8,214,873 to Martin Weel (Ex. 1001, “the ‘873 patent”). Specifically, I have been asked to render an opinion of whether the grounds on which a trial was instituted in this proceeding render the claims at issue invalid. A current copy of my curriculum vitae is attached hereto as Exhibit A.

2. I am the President of Gareth, Inc., which provides software engineering, consulting, and litigation support to high-technology companies internationally. Gareth Inc. provides research and development services including product development, coding and documentation. Gareth Inc. also provides a wide variety of software engineering services including embedded systems, real-time systems, operating systems support and development, file systems, compilers, parallel processing systems, and digital signal processing (DSP) systems.

3. Gareth Inc. has prepared and provided compilers, interpreters and assemblers, enterprise software systems, chip architectures, software architectures, realtime operating systems, home entertainment systems, embedded systems, instruction set architectures, datasheets, databooks, user guides, and custom automated documentation systems. Technology clients have included Infineon, Philips Semiconductor, Trimedia Technologies, Equator Technologies, Pixim, Inc.,

Palm, Inc., Sonic Solutions, Sony Corporation of America, Chromatic Research, Raza Microelectronics, Cradle Technologies, Siemens Microelectronics, Zoran Corporation, Dolby Laboratories, and C-Cube Microsystems.

4. I have over 37 years of academic and professional experience in computer science, software development, embedded systems, networking, enterprise software systems, digital audio signal processing, and music technology. I received my doctorate from Stanford University in 1980, where I studied under John Chowning at the Center for Computer Research in Music and Acoustics, which was a center within the Stanford Artificial Intelligence Laboratory directed by John McCarthy at the time.

5. I was an early Apple Computer employee, having been hired there in 1979 full time while still in graduate school. I worked for Jef Raskin who reported directly to Steve Jobs, founder and CEO of Apple Computer. I left Apple in 1980 to teach at UCSD where I taught, for a decade, graduate and undergraduate courses in computer science and digital audio, and cofounded the Computer Audio Research Laboratory there.

6. I have published widely in various peer-reviewed journals, and have authored three books with the MIT Press, including Musimathics, a two-volume introduction and reference to the mathematics of music.

7. I have been a Software Architect for multiple consumer and professional products for large international electronics companies and have sustained a long and successful career at the cutting edge of software development and multimedia computing.

8. I am experienced in a variety of computer science domains, ranging from embedded systems, digital home entertainment systems, graphical user interfaces, real-time operating systems, parallel processing systems, signal processing computers, device drivers, and software for film, music, and audio. I have extensive experience in use of multiprocessor/multicore architectures to solve problems in digital audio signal processing. I have also provided expertise in compiler design, file systems, operating systems, handheld networked Personal Information Management (PIM) devices, network audio streaming systems, wireless remote control systems, digital loudspeaker systems, digital home entertainment systems, enterprise email systems, software for factory automation systems, interactive databases, enterprise software for managing of music libraries, MPEG audio compression, on-line gaming, composition systems, digital camera hardware and software, digital audio hardware and software technologies, and more.

9. I also have over seventeen years of experience as an expert witness on numerous cases. Most recently, I testified at an International Trade Commission

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