

Declaration of Regis J. Bates Jr. in Support  
of Petition for *Inter Partes* Review of  
U.S. Patent No. 8,131,391

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

Apple Inc.,  
Petitioner

v.

One-E-Way, Inc.,  
Patent Owner

---

U.S. Patent No. 8,131,391

**DECLARATION OF REGIS J. BATES JR.**

## Table of Contents

	Page
I. INTRODUCTION AND QUALIFICATIONS.....	1
A. Qualifications and Experience .....	1
B. Publications and Conferences .....	3
C. Assignment and Compensation.....	4
D. Materials Considered and Relied On .....	4
II. PERSON OF ORDINARY SKILL IN THE ART .....	7
III. STATEMENT OF LEGAL PRINCIPLES.....	9
A. Obviousness.....	9
B. Claim Construction .....	10
IV. RELEVANT TECHNOLOGY BACKGROUND .....	13
A. Wireless Digital Communications .....	13
1. Interference from Noise .....	17
B. Industrial, Scientific, and Medical (ISM) Bands .....	18
C. Spread Spectrum.....	20
1. Use of Spread Spectrum to Provide Code-Division Multiple Access (“CDMA”) .....	23
D. Relevant Knowledge of a Person of Ordinary Skill in the Art .....	25
V. THE ’391 PATENT.....	27
A. Overview of the Specification.....	27
B. Overview of the Challenged Claims .....	34
VI. CLAIM CONSTRUCTION .....	35
VII. APPLICATION OF THE PRIOR ART TO THE CHALLENGED CLAIMS .....	38
A. Brief Summary of Prior Art .....	39
1. References Cited in Ground 1 .....	39
(a) Ham (Ex. 1010) .....	39

**Table of Contents**  
(continued)

	<b>Page</b>
(b) Sklar (Ex. 1003).....	41
(c) Xia (Ex. 1011) .....	48
(d) Groe (Ex. 1009) .....	50
2. Additional Reference Cited in Ground 2 .....	52
(a) Haartsen (Ex. 1005).....	52
B. Claim 4 .....	55
1. Ground 1: Obviousness over Ham, Sklar, Xia, and Groe.....	55
(a) 4(pre): “A portable wireless digital audio system for digital transmission of an original audio signal representation from a portable audio player to a digital audio receiver, said portable wireless digital audio system comprising:” .....	56
(b) 4(a): “a digital audio transmitter operatively coupled to said audio player and transmitting a unique user code with said original audio signal representation in packet format, wherein said digital audio transmitter coupled to said audio player is capable of being moved in any direction during operation, said digital audio transmitter comprising:” .....	60
(c) 4(b): “an encoder operative to encode said original audio signal representation to reduce intersymbol interference;” .....	92
(d) 4(c): “a digital modulator module configured for independent code division multiple access (CDMA) communication operation and utilizing differential phase shift keying (DPSK) to modulate said original audio signal representation;” .....	119

**Table of Contents**  
(continued)

	<b>Page</b>
(e) 4(d): “said digital audio receiver capable of being moved in any direction during operation and in direct wireless communication with said digital audio transmitter, said digital audio receiver comprising:” .....	139
(f) 4(e): “a direct conversion module configured to capture packets and the correct bit sequence within the packets aided by lowering signal detection error through reduced intersymbol interference coding of said audio representation signal respective to said mobile digital audio receiver and mobile said digital audio transmitter operatively coupled to said audio player, said packets embedded in the received spread spectrum signal, the captured packets corresponding to the unique user code;” .....	140
(g) 4(f): “a digital demodulator configured for independent CDMA communication operation;” .....	157
(h) 4(g): “a decoder operative to decode the applied reduced inter-symbol interference coding of said original audio signal representation;” .....	159
(i) 4(h): “a digital-to-analog converter generating an audio output of said original audio signal representation; and” .....	160
(j) 4(i): “a module adapted to reproduce said generated audio output, said audio having been wirelessly transmitted from said audio player virtually free from interference from device transmitted signals operating in the wireless digital audio system spectrum.” .....	162
2. Ground 2: Obviousness over Ham, Sklar, Xia, and Groe, in Further View of Haartsen .....	166
C. Claim 1 .....	182

**Table of Contents**  
(continued)

	<b>Page</b>
1. 1(pre): “A wireless digital audio headphone comprising:” ...	182
2. 1(a): “a portable digital audio headphone receiver configured to receive a unique user code bit sequence and a original audio signal representation in the form of packets, said digital audio headphone receiver, capable of mobile operation and configured for direct digital wireless spread spectrum communication with a mobile digital audio transmitter;” .....	183
3. 1(b): “a direct conversion module configured to capture packets and the correct bit sequence within the packets aided by lowering signal detection error through reduced intersymbol interference coding of said audio representation signal respective to said headphone receiver and said mobile digital audio transmitter, said packets embedded in the received spread spectrum signal, the captured packets corresponding to the unique user code;” .....	185
4. 1(c): “a digital demodulator configured for independent CDMA communication operation;” .....	187
5. 1(d): “a decoder operative to decode reduced intersymbol interference coding of original audio signal representation;” .....	188
6. 1(e): “a digital-to-analog converter (DAC) generating an audio output of said original audio signal representation; and” .....	189
7. 1(f): “a module adapted to reproduce said generated audio output in response to the unique user code bit sequence being recognized, said audio having been wirelessly transmitted and reproduced virtually free from interference from device transmitted signals operating in the wireless headphone spectrum.” .....	191
8. Ground 2 .....	192
D. Claim 3 .....	195

# 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.