Filed on behalf of Valencell, Inc.
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

VALENCELL, INC.,
Patent Owner.

Case IPR2017-00321
U.S. Patent No. 8,923,941

PATENT OWNER'S RESPONSE

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Skip West, Valencell and RapidSOS Honored with CTA's 2016 Innovation Entrepreneur Awards
2002	Biometrics Lab: Performance of Leading Optical Heart Rate Monitors During Interval Exercise Conditions
2003	Valencell website (http://valencell.com/customers/)
2004	Electrical (ECG) vs. Optical-based (PPG) Biosensors in Wearable Devices
2005	Estimating Respiratory and Heart Rates from the Correntropy Spectral Density of the Photoplethysmogram
2006	Continuous Blood Pressure Measurement by Using the Pulse Transit Time: Comparison to a Cuff-Based Method
2007	How an LDV/LDA works
2008	A New Look at the Essence of the Imaging Photoplethysmography
2009	Declaration of T. William Kennedy - PHV Motion
2010	Declaration of Luca Pollonini
2011	Deposition of Majid Sarrafzadeh
2012	Tur, Ethel, et al. "Basal perfusion of the cutaneous microcirculation: measurements as a function of anatomic position." Journal of Investigative Dermistology 81.5 (1983): 442-446.
2013	Kamal, A. A. R., et al. "Skin Photoplethysmography—A Review." Computer Methods and Programs in Biomedicine 28.4 (1989): 257-269.
2014	Arimoto, Hidenobu, Mariko Egawa, and Yukio Yamada. "Depth Profile of Diffuse Reflectance Near-Infrared Spectroscopy for Measurement of Water Content in Skin." Skin Research and Technology 11.1 (2005): 27-35.
2015	Khalil, Omar S., et al. "Method For Modulating Light Penetration Depth In Tissue And Diagnostic Applications Using Same." U.S. Patent No. 7,043,287. 9 May 2006.

I. Introduction

Valencell's Patent No. 8,923,941 (the "'941 patent") describes a novel wearable device for processing signals from both a photoplethysmographic ("PPG") sensor and another physical or motion sensor. As particularly claimed in the apparatus claims 14-21 of the '941 patent, the signal processor within the chipset of said device uses data from the PPG sensor and motion sensor to reduce the motion noise artifacts from the PPG signals. This, along with the use of a non-air light transmissive material, allows a user wearing the device to receive accurate data from a PPG sensor (such as a heart rate reading), regardless of the type of physical activity in which the user is engaged. These were novel advancements in the art, and Petitioner Apple Inc. ("Petitioner") has not met its burden to prove that either of the two proposed primary combinations render the challenged claims obvious. Thus, all four instituted grounds fail.

Grounds 1 and 2 fail because the proposed combination of U.S. Patent Application Publication 2004/0186387 ("Kosuda") and Japanese Patent Application Publication No. 2005/270544 ("Maekawa") suffers from at least two defects, each of which is fatal to Petitioner's argument of unpatentability of claims 14 and all the claims that depend from it.

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