

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC. and FITBIT, INC.  
Petitioners

v.

VALENCELL, INC.  
Patent Owner

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Case IPR2017-00317<sup>1</sup>  
Patent 8,989,830

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**DECLARATION OF BRIAN W. ANTHONY, PH.D.  
IN SUPPORT OF PETITIONER APPLE INC.'S  
REPLY TO PATENT OWNER'S RESPONSE**

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<sup>1</sup> IPR2017-01553 has been joined to this current proceeding.

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## I. Introduction and Overview

1. This declaration supplements my declaration (APL1003) submitted with Apple's Petition. I maintain my opinions in that declaration and incorporate here my qualifications and understanding of legal principles. (APL1003, ¶¶1-24.) This declaration more specifically addresses positions in Valencell's Patent Owner Response (Paper 19) and the declaration of Dr. Albert Titus (Ex. 2007) submitted therewith.

2. The '830 Patent is directed to the "growing market demand for personal health and environmental monitors" for use "during daily physical activity." (APL1001, 1:21-33.) As I explained in my declaration submitted with Apple's Petition (APL1003), when "cutting the wire," artisans designing a wireless system looked to wired predecessor technology, using solutions and technical innovations previously embodied in wired devices. (APL1003, ¶37.) As I further explained, artisans also understood and routinely considered a variety of design tradeoffs for achieving wireless capability. (*Id.*; Ex. 2010, 160:23-161:5, 202:9-203:14.) During the relevant timeframe for the '830 Patent, the industry was evolving toward wireless optical biosensors. Therefore, in my opinion, it is important to consider this backdrop when analyzing the prior art and not in a vacuum.

3. In view of Valencell's arguments, it is still my opinion that all of the claim elements in the '830 Patent are taught or suggested by Goodman alone or in

combination with the other prior art references presented in the Grounds of the Petition. In my opinion, Valencell's arguments rely on overly narrow interpretations of the claim elements, inaccurate explanations of the prior art references, and unfounded concerns about the combinations of prior art references that inflate potential "detriments" and ignore an artisan's understanding of design tradeoffs.

## **II. Valencell's description of the '830 Patent focuses on elements that are not recited in the claims.**

4. In reviewing Valencell's summary of the '830 Patent, I was surprised to see that it focused largely on terms that are not recited in the claims. For example, Valencell refers to "light guide 18" and "light guiding region 19" numerous times in its description of the '830 Patent. (*See* POR, 11-16.) The claims, however, do not recite a "light guide" or a "light guiding region."

## **III. Claim Construction**

### **A. "Cladding Material"**

5. In my opinion, Valencell's proposed interpretation of "cladding material" as "a material that *confines light within a region*" is not the broadest reasonable interpretation of this term in light of the '830 Patent specification. (POR, 23 (emphasis added).) As I mention above, Valencell focuses on the "light guiding region 19," which is not recited in the claims, as support for its interpretation of "cladding material." (POR, 23-25 (quoting APL1001, 14:62-64 ("[t]he light guiding region 19 of the light guide 18 in the illustrated embodiment of FIG. 3 is de-

fined by cladding material 21 that helps confine light within the light guiding region 19.”)) (emphasis in POR.) In all of Valencell’s examples from the ’830 Patent, two layers of cladding material are required in order to “help[] confine light.” (POR, 23-25.) But the claims only recite one layer of cladding material, *i.e.*, “a layer of cladding material near the inner body portion inner surface.” Thus, in my opinion, Apple’s proposed construction of “a material that *blocks or reflects* at least some light” is more appropriate as the broadest reasonable construction, because a single layer of cladding material as claimed does not necessarily “confine light within a (guided) region,” but instead would broadly serve to reflect or constrain some of the light on one side of the layer.

6. The ’830 Patent does not expressly define “cladding material,” but it does provide numerous examples including “air, a polymer, plastic, or a soft material having a lower index of refraction than silicone” (APL1001, 13:52-54) or even a “transparent or mostly transparent [material] with a lower index of refraction than the light transmissive material” (*id.* at 17:1-17:4). A POSA would have understood that air, many polymers and plastics, and transparent or mostly transparent materials can allow at least some light to pass through them depending the material’s fabrication technique, surface roughness, layer thickness, material’s optical index as a function of wavelength, orientation of incident light, the properties of the materials on the other side of the layer, etc. To meet Valencell’s proposed con-

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