

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LULULEMON ATHLETICA CANADA INC. and LULULEMON USA INC.
Petitioners

v.

NIKE, INC.
Patent Owner

Case IPR2023-00349
Patent 9,259,615

**DECLARATION OF ROBERT STONE, PH.D.
IN SUPPORT OF PATENT OWNER NIKE, INC.'S RESPONSE**

lululemon v. NIKE, Inc. IPR2023-00349 Patent No. 9,259,615 Ex. 2002
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I, Robert Stone, Ph.D. declare as follows:

I. INTRODUCTION

1. I have been retained by Patent Owner, Nike, Inc. (“Nike”), as an independent expert in this *Inter Partes* review (“IPR”) proceeding before the Patent Trial and Appeal Board, which I understand involves U.S. Patent No. 9,259,615 (the “’615 patent”). I have been asked to opine on technical issues related to the patentability of the ’615 patent. My areas of expertise include the technological field in which the ’615 patent resides.

2. I understand that this proceeding involves claims 1–5, 7, 11, and 13 (the “Challenged Claims”). I further understand that Petitioner lululemon athletica canada inc. and lululemon usa inc. (collectively, “lululemon”) raises 5 grounds in the Petition for *Inter Partes* Review. I understand that the raised grounds relate to the following references:

<u>Reference</u>	<u>Abbreviation</u>
U.S. Patent Publication No. 2011/0197157	“Hoffman” (Ex. 1002)
U.S. Patent Publication No. 2004/0152957	“Stivorice” (Ex. 1003)
U.S. Patent Publication No. 2006/0111944	“Sirmans” (Ex. 1004)
JP Patent Publication No. 2003-141260	“Kobayashi” (Ex. 1005)
U.S. Patent No. 7,431,696	“Brady” (Ex. 1021)

3. I understand that the grounds are as follows:

<u>Ground</u>	<u>35 U.S.C. §</u>	<u>Claims</u>	<u>References</u>
1	102	1-5, 7, 11, and 13	Hoffman
2	103	1-5, 7, 11, and 13	Stivorice and Kobayashi
3	103	1-5, 7, 11, and 13	Sirmans and Kobayashi

4	103	3-5	Stivoric, Kobayashi, and Brady
5	103	3-5	Sirmans, Kobayashi, and Brady

4. I have been asked to provide my opinions relevant to the appropriate construction of one term specific to Grounds 2 and 3. My opinions are set forth below.

5. This declaration is based upon the information presently available to me. Should additional information become available, I hereby reserve the right to supplement my opinions based upon information that may subsequently become available, which may include a review of information that may be produced, or from testimony or deposition that are subsequently conducted in this IPR proceeding.

6. The opinions set forth in this declaration are based on my personal knowledge and experience, my professional judgment, and my analysis of the materials and information referenced in this declaration, including the '615 patent ('615 patent), its prosecution history, the Institution Decision in this IPR proceeding, and other materials listed as exhibits to the petition in IPR2023-00349.

II. BACKGROUND AND EXPERIENCE

7. I received a B.S. in electrical engineering from Virginia Polytechnic Institute and State University in 1977, a M.S. in electrical engineering from Virginia Polytechnic Institute and State University in 1979, and a Ph.D. in electrical engineering from Stanford University in 1981.

8. I have over 40 years of academic and industry experience in the field

of medical electronics systems and instrumentation, including experience in both implantable and external drug delivery systems design. Examples of my pertinent experience are set forth herein, with additional experience described on my CV. My CV is attached as Appendix A.

9. In addition, I have real-world, firsthand experience in designing wearable devices for monitoring patient parameters including skin temperature, EKG (electrical activity of the heart), respiratory rate and ventilation, and body position and activity using accelerometers. These devices have been incorporated into a garment named the eShirt®, which is in the process of commercialization. The garment has utilized various forms of communication, including Bluetooth and WiFi, to inform wearers and care providers of the wearer's health and fitness status and to alert any unusual circumstances.

10. I am a named inventor on 49 published patents and patent applications in the U.S. and worldwide relating to a variety of medical devices, including audiometric devices, methods of determining blood constituents, acoustic coupling devices, methods, and apparatuses for detecting optical pulses, end-tidal carbon monoxide monitor filters, and methods and apparatuses for calculating arterial oxygen.

11. I am a member of several professional organizations, including the Institute of Electrical and Electronics Engineers (IEEE), the International Society

for Optics and Photonics (SPIE), and the American Nuclear Society.

12. In November 2011, I founded Medical Design Solutions, Inc. Since that time to the present, I have been employed as the Chief Executive Officer at Medical Design Solutions, Inc. In this role, I am responsible for all phases of product development, including concept definition, prototyping, design, evaluation, patenting, and technology licensing of various types of medical devices. During my career at Medical Design Solutions, Inc., I have designed several of the projects described earlier relating to and incorporating press-stud connectors.

13. I am currently serving as a Professor of Practice of Biomedical Engineering at Virginia Polytechnic Institute and State University. I previously taught mechanical engineering courses at Virginia Polytechnic Institute and State University (September 1981 to September 1983).

14. My opinions are based on my experience as a person of ordinary skill in the art at the time of the invention of the '615 patent. My opinions are also based on my knowledge and experience working with others who were persons of ordinary skill in the art at the time of the invention of the '615 patent.

III. COMPENSATION AND PRIOR TESTIMONY

15. I have been qualified as an expert and admitted to testify in both state and federal courts. To the best of my knowledge, no court has ever excluded or prohibited me from providing trial testimony as an expert witness.

16. I am being compensated at my standard rate of \$450/hour. My compensation does not depend in any way on the outcome of the matter or my opinions.

IV. MATERIALS CONSIDERED

17. All my opinions are based on my knowledge and professional judgment, and the following documents that I considered:

- (a) lululemon's Petition for *Inter Partes* Review of U.S. Patent No. 9,259,615;
- (b) Exhibits 1001–1021;
- (c) Institution Decision in IPR2023-00349 [Paper No. 11]; and
- (d) All other materials discussed herein.

V. LEGAL STANDARDS

18. I am not an attorney. For the purposes of this declaration, I have been informed about certain aspects of the law that are relevant to my opinions. My understanding of that law is summarized below.

19. I understand from counsel that, in this IPR proceeding, lululemon has the burden of proving a proposition of unpatentability by a preponderance of the evidence.

20. I understand that a claim may be unpatentable over prior art under either an anticipation theory or an obviousness theory. I understand, that to anticipate a claim, a single prior art reference must disclose each and every element

of the claim. I further understand that the reference must not only disclose every element of the claim, but it must disclose those elements as arranged in the claim. I understand that even slight differences between a prior art reference and the claimed invention may make a showing of anticipation insufficient.

21. I understand that a patent claim is rendered obvious if it would have been obvious to a POSITA to combine the teachings of the prior art to yield the patent claim. I also understand that it is not required (although it is acceptable) that each element/limitation of a patent claim be found in a single reference for a claim to be found obvious. Rather, for a patent claim to be found obvious, all the elements/limitations of the patent claim must be found in teachings of one or more references that would have been combined by a POSITA with a reasonable expectation of success. I understand that a proper analysis of whether an invention is unpatentable for obviousness includes a review of the scope and content of the prior art, the differences between the patent claims at issue and the prior art, the level of ordinary skill in the field of the invention at the time of the invention, and other objective considerations.

22. I understand that a showing of obviousness requires some articulated reasoning with a rational underpinning to support the combination of the references. I understand that in consideration of the issue of obviousness it is important to identify whether a reason existed at the time of the invention that would have led a

POSITA to combine elements of the references in a way that yielded the claimed invention.

23. I understand that a claim may be considered unpatentable for obviousness for various reasons. I have been informed that the following exemplary rationales may support a finding of obviousness:

- combining prior art elements according to known methods to yield predictable results;
- simply substituting one known element for another to obtain predictable results;
- use of a known technique to improve similar devices in the same way;
- applying a known technique to a known device ready for improvement to yield predictable results;
- choosing from a finite number of identified, predictable solutions with a reasonable expectation of success;
- known work in a field that prompts variations in the work in the same or a different field that leads to predictable results; and
- some teaching, suggestion, or motivation in the prior art that would have led a POSITA to modify a prior art reference or combine multiple prior art references or teachings to arrive at the claimed invention.

VI. LEVEL OF ORDINARY SKILL IN THE ART

24. I understand that lululemon claims that a POSITA for the '615 patent would have had (1) a bachelor's degree in engineering, computer science, industrial design, biomechanics, or a related field, and (2) at least two years of experience researching, developing, designing, and/or testing fitness or physiological sensors, wearable devices, physiological or biomechanical devices, remotely-controlled systems or interfaces, and/or network-based applications and/or equipment, or the equivalent experience or education. Petition, 18. For purposes of this Response, I apply lululemon's definition of a POSITA.

25. In view of my experience and qualification noted above, I am well positioned to opine as to what a POSTIA at the time of the invention would have understood and done.

26. My opinions contained herein are from the perspective of a POSITA. My opinions reflect how a POSTIA would have interpreted the claims, the prior art, and any available evidence.

27. My opinions are based on generally-accepted methodologies in the scientific and biomechanical communities.

VII. THE '615 PATENT

A. Overview of the '615 Patent

28. The '615 patent is directed to "athletic performance monitoring and tracking" using "a wearable device." '615 patent, 2:21–24. The wearable device

includes an accelerometer, heart-rate monitor, or other types of sensors that receive “athletic performance data” like “speed, distance, steps taken, and energy expenditure such as calories, heart rate and sweat detection.” *Id.*, 8:43–47. The athletic performance data “may also be expressed in terms of activity points ... or currency earned by the user based on the activity of the user.” *Id.*, 8:24–50. The wearable device may transfer the athletic performance data to a “tracking application” that records activity data and tracks goals, milestones, other achievements, and notably, “streaks.” *Id.*, 2:42–47.

29. The ’615 patent describes that a user may customize activity goals to be monitored over a “goal time period”—i.e., “such as a day, an hour, a week, a month or the like” —or by “defin[ing] his or her own goal time period.” *Id.*, 51:1–8. The user may then set a certain goal for the chosen time period, the goal being “defined by any of the metrics measured and recorded by the wearable device.” *Id.*, 51:20–25; *see also id.*, 51:38–41.

30. In addition to providing feedback about a user’s activity in a single goal time period, the tracking application may provide feedback relating to multiple goal time periods. For example, the tracking application may track “activity streaks,” which “include the completion of multiple goals corresponding to multiple consecutive goal time periods.” *Id.*, 56:65–57:9. As a result of achieving a streak, the user “may be awarded with rewards or types of recognition including coupons,

free products, virtual items including virtual apparel, icons, images etc., services, event tickets and the like.” *Id.*, 57:14–18.

31. Independent claim 1¹ is copied below with limitations 1A–1E identified:

1. A method, comprising:

[1A] receiving athletic activity data from a device configured to be worn by a user;

[1B] receiving an activity time period;

[1C] receiving a first activity goal for the activity time period;

[1D] determining, at a processor, whether the received athletic activity data exceeds the first activity goal for a predetermined number of consecutive activity time periods; and

[1E] presenting a streak reward to the user when the received athletic activity data exceeds the first activity goal for the predetermined number of consecutive activity time periods.

Id., 80:25–37.

VIII. CLAIM CONSTRUCTION

32. In my opinion, all terms and phrases in the ’615 patent should be given their ordinary and customary meaning, including limitations 1[B]/11[B]—“receiving an activity time period.” With respect to limitations 1[B]/11[B], it is my opinion that a POSITA at the time of invention reading the claims in light of the

¹ Independent Claim 11 is a non-transitory computer-readable medium claim that recites substantially the same process steps as the method of Claim 1.

'615 patent's specification would have understood "receiving an activity time period" to mean "receiving an activity time period from a user during a goal setting operation."

33. In my opinion, it is clear that a POSITA reading the claims in light of the '615 patent specification would have understood that the activity time period was received from a user as the user set his or her goal(s). For example, the '615 patent discloses that a "daily goal" may be set during registration of the wearable device. '615 patent, 46:61–63. Additionally, the specification further discloses that a "user may select a goal setting option" corresponding to "a specified amount of time such as a day, an hour, a week, a month or the like," or "alternatively, the user may define his or her own goal time period." *Id.*, 51:1–8. In my opinion, these passages confirm that a user not only selects or defines a goal time period, i.e., an "activity time period," but that he or she does so in the course of goal setting. In this way, a user is able to customize his or her goals by choosing not only the activity to take place, but the time over which the activity will take place.

34. The '615 patent specification also discloses that once a user chooses a goal time period and a goal, "the user may save the goal" and the "goal may then be set for the goal time period." *Id.*, 51:38–48. The goal time period "may start immediately or may start at a future time." *Id.*, 51:38–48; *see also id.*, 51:61–66, 54:12–20. Therefore, the '615 patent specification describes that a goal time period

and goal for that goal period are first selected and set, and only then (or later) may the goal time period begin to run.

35. lululemon's expert, Dr. Fischer, also agrees that it is the user who sets the activity goal. Ex. 1006, ¶40 (discussing that the "user sets an activity goal ... during a specific activity or goal time period").

IX. OVERVIEW OF THE PRIOR ART REFERENCES

A. Hoffman

36. Hoffman generally relates to an "athletic information monitoring device" that "permit[s] a user to set a goal relating to his or her athletic activities, and then view one or more images graphically illustrating the user's progress toward accomplishing those goals." *See id.*, [0055], [0123]. Hoffman's device includes "a sensor for measuring parameters relating to the person being monitored." Ex. 1002, [0055]–[0056]. The sensor then "transfer[s]" "recorded athletic information to one or more separate devices, in order to view the recorded athletic data." *Id.* As a result of completing goals, Hoffman describes that the user may receive stamps, trophies, or medallions. *See id.* at [0212].

B. Stivoric

37. Stivoric relates to an apparatus "for tracking caloric consumption and caloric expenditure data" for "individuals interested in a healthier lifestyle." Ex. 1003, Abstract, [0004]. The apparatus may include sensors for collecting physiological data and other parameters and "a processing unit" that receives

signals from the sensors and “generates data” indicative of calories expended by the user. *Id.*, [0002], [0009]. Stivoric’s apparatus optionally includes a data input and output device (“I/O device”) that displays information to the user and allows the user to enter information. *Id.*, [0002]. Stivoric discloses that a display interface of the apparatus may summarize a daily caloric expenditure target versus actual calories burned for the day. *Id.*, [0113], [0197]. In one embodiment, a user has the option to view their caloric progress and/or history over a daily, weekly, or monthly goal period. *Id.*, [0197].

C. Sirmans

38. Sirmans is directed to a system that allows insurance companies to monitor an individual member’s compliance with health-promoting measures by rewarding member performance with incentives like gift certificates and financial reimbursements for the costs of health/well-being activities. *Id.*, [0013]–[0014], [0020], [0030]. In one embodiment, a monitoring device tracks the individual’s efforts to perform health promoting measures (such as yoga classes and alcohol-ending courses) and exercise regimes (such as weight training or aerobic exercise like swimming). *Id.*, [0031]. The individual’s level of compliance is then summarized into a legend with an assessment summary. *Id.* The device sends this tracked data to a third-party such as the individual’s insurance carrier.

D. Kobayashi

39. Kobayashi discloses a system that measures a user's activity using a "health device" and then converts the measured activity to "health points." Ex. 1005, [0001]. When a user reaches a certain number of health points, they may "purchase" products and/or services. *Id.* In one embodiment, Kobayashi discloses a user-worn pedometer as an exemplary health device. *Id.*, [0023], [0041], Fig. 7.

E. Brady

40. lululemon relies on Brady for its disclosure of a wrist-worn heart-rate sensor. Petition, 17 (citing Ex. 1021, 5:16–41, 6:1–13).

X. GROUND 2: LULULEMON FAILS TO DEMONSTRATE THAT STIVORIC IN VIEW OF KOBAYASHI RENDERS OBVIOUS THE CHALLENGED CLAIMS

41. In my opinion, lululemon has not shown that the combination of Stivorik and Kobayashi renders obvious the Challenged Claims.

A. lululemon does not show that the Stivorik-Kobayashi Combination teaches or suggests "receiving an activity time period" (Limitations 1[B]/11[B])

42. In my opinion, lululemon has not shown that the Stivorik-Kobayashi Combination teaches or suggests "receiving an activity time period," as recited in limitations 1[B]/11[B]. This is because, in my opinion, Stivorik does not teach or suggest "receiving" an activity time period for use in actively measuring whether the received activity data exceeds a first activity goal for that received activity time period.

43. In the portions of Stivorik relied upon by lululemon, a user may rotate a dial or press a button to view past progress towards a goal, the user is only able to *retroactively* view their caloric expenditure achievement for either the current day, week, or month. Ex. 1003, [0197]–[0198]. In other words, the Stivorik system never “receiv[es]” an activity time period, as recited in limitation 1B. Instead, all of Stivorik’s available time periods are pre-programmed in the system (i.e., a day, a week, and month) and a user may “toggle” between “the various time periods within each [goal], by rotating dial 1220.” Ex. 1003, [0197]. Stivorik’s device hardware is even outfitted with these three pre-determined time periods (*see* Ex. 1003, Figs. 43A–C). As shown in Figures 43A–C, I/O device 1200 includes physical selections for “D” (day), “W” (week), and “M” (month) in the “GOALS” section of the interface. This indicates to me that no other time periods are contemplated in Stivorik. As such, it is my opinion that all of Stivorik’s activity time periods are preset and displayed regardless of whether the activity time period is received.

44. As I explained above in Section VIII, a POSITA would have understood that the activity time period was received during a goal setting operation. In my opinion, Stivorik does not teach or suggest that a user enters or defines an activity time period “when” setting an activity goal, i.e., during a goal setting operation. lululemon points to Stivorik’s disclosure of an “I/O device” that

“receive[s] activity time periods, such as ‘a day, a week or a month.’” *Id.*, 44 (citing Ex. 1003, [0197]). lululemon contends that these time periods “are received from a user via a selection made ‘by rotating dial 1220’ or ‘pressing button 1215.’” *Id.* However, lululemon does not account for “when” the user makes this selection. Stivorik discloses that “calories burned by the individual over specific time periods such as a day, a week or a month” may be “compar[ed] to a predetermined goal.” Ex. 1003, [0197]. A user is not able to customize an activity time period for a particular goal in a forward-looking manner “at the time of setting a goal.”

45. In my opinion, Dr. Fischer’s opinions do not cure these deficiencies. Dr. Fischer opines that Stivorik teaches “a comparison to a predetermined goal” when arguing that “a POSITA would understand that this workout history data is readily available for analysis” to determine the status of meeting goals. Ex. 1006, ¶52. In my opinion, Dr. Fischer’s opinion confirms that Stivorik only uses pre-established time periods (i.e., day, week, month) to analyze a predetermined goal. This also suggests that a goal is set in Stivorik apart from setting an activity time period.

46. I also disagree with Dr. Fischer that “[a] POSITA would understand that *any* reasonable activity time period could be set.” Ex. 1006, ¶57 (emphasis added). Dr. Fischer’s opinion on this point is conclusory, and contradicts Stivorik, which only discloses goal time periods of a day, a week, or a month. Ex. 1003,

[0197].

47. Thus, in my opinion, lululemon has not shown that the Stivoric-Kobayashi Combination teaches or suggests limitations 1[B]/11[B].

B. lululemon does not show that the Stivoric-Kobayashi Combinations teaches or suggests “determining [, at a processor, /] whether the received athletic activity data exceeds the [first /] activity goal for a predetermined number of consecutive activity time periods” (Limitations 1[D]/11[D])

48. In my opinion, lululemon has not shown that the Stivoric-Kobayashi Combination teaches or suggests “determining [at a processor /] whether the received athletic activity data exceeds the first activity goal for a predetermined number of consecutive activity time periods,” as recited in limitations 1[D]/11[D]. I understand lululemon relies on Stivoric for determining whether the received activity data exceeds the first activity goal to meet this limitation. Petition, 46. I further understand that lululemon then relies on Kobayashi for teaching whether the goal has been exceeded for a predetermined number of consecutive time periods. Petition, 47. In my opinion, lululemon fails to explain how Kobayashi’s teachings of determining whether a goal has been exceeded for a predetermined number of consecutive activity time periods would have been implemented in Stivoric to reach these limitations.

49. lululemon points to “processing unit 1300 of I/O device 1200” in Stivoric as determining whether the activity time period meets a first activity goal.

Petition, 46. As shown in Figures 43A–C of Stivorice, I/O device 1200 allows a user to toggle between user performance data for three “activity time periods”: day, week, or month. Ex. 1003, [0197]–[0198]. Stivorice’s I/O device does not allow a user to see feedback of his or her performance for multiple activity time periods, i.e., two or more days, weeks, or months. Even assuming Kobayashi teaches determining whether a user has met a goal for a predetermined number of consecutive activity time periods, lululemon has not explained how those teachings would be implemented in Stivorice’s I/O device. lululemon merely states that “it would have been a simple modification” to implement Kobayashi’s teachings that would have taken “nothing more than basic programming skills.” Petition, 47. Dr. Fischer’s says the same. Ex. 1006, ¶115. Both lululemon and Dr. Fischer overlook that changing the actual hardware of Stivorice’s device could not be resolved by “basic programming skills.” Therefore, the features described in Stivorice’s I/O device would not be “accomplished by a simple modification” using “nothing more than basic programming skills,” as lululemon suggests.

50. Thus, in my opinion, lululemon has not shown that the Stivorice-Kobayashi Combination teaches or suggests limitations 1[D]/11[D].

C. lululemon does not show that the Stivorice-Kobayashi Combination teaches or suggests “receiving a second activity goal for the activity time period” (Claim 7)

51. In my opinion, lululemon has not shown that the Stivorice-Kobayashi

Combination teaches or suggests “receiving a second activity goal for the activity time period,” as recited in dependent claim 7. The reasons are two-fold.

52. First, as I explained above, “receiving an activity time period” requires “receiving an activity time period from a user during a goal setting operation.” As I discuss above in Section X.A, Stivorice does not teach this limitation.

53. Second, in my opinion, Stivorice does not teach or suggest a “second activity goal” undertaken during the same time period as any other goal. lululemon relies on Stivorice’s paragraph 218 to say that its device “can be used with any ‘set of goals that may be established [] by the user or a third party.’” Petition, 54. This paragraph does not mention an activity time period, nor does it mention whether multiple goals are attempted during the same time period. lululemon also points to paragraph 227 of Stivorice, which describes taking various measurements relating to a user of its device, and computing algorithms based on those measurements. *Id.*, 54 (citing Ex. 1003, [0227]). Not only does this passage not relate to a user’s goal(s), it also does not mention an activity time period or whether multiple goals are attempted during the same time period.

54. Thus, in my opinion, lululemon has not shown that the Stivorice-Kobayashi Combination teaches or suggests limitations claim 7.

XI. GROUND 3: LULULEMON FAILS TO DEMONSTRATE THAT SIRMANS IN VIEW OF KOBAYASHI RENDERS OBVIOUS THE CHALLENGED CLAIMS

55. In my opinion, lululemon has not shown that the combination of Sirmans and Kobayashi renders obvious the Challenged Claims obvious.

A. lululemon does not show that the Sirmans-Kobayashi Combination teaches or suggests “receiving an activity time period” (Limitations 1[B]/11[B])

56. In my opinion, lululemon has not shown that the Sirmans-Kobayashi Combination teaches or suggests “receiving an activity time period,” as recited in limitations 1[B]/11[B]. I understand lululemon relies solely on Sirmans for this limitation. Petition, 58–59.

57. In my opinion, the step in Sirmans that lululemon points to as “receiving an activity time period” does not receive an activity time period from the user. Petition, 59 (citing Ex. 1004, [0084]). Instead, the activity time period comes from a third party entity. Sirmans describes that a “gatekeeper,” such as an insurance provider, sets a protocol criteria for the user and “the gatekeeper profiles, tracks, and stratifies the recorded data into a performance model.” Ex. 1004, [0032]. lululemon cites Sirmans’ embodiment in which the “Center for Disease Control” “set[s] an exercise regimen for the user to adopt.” Petition, 59 (citing Ex. 1004, [0084] (emphasis added)). Sirmans discloses: “[w]earing the body monitor, the member will be asked to perform the Center for Disease Control recommended

levels of exercise (i.e., moderate intensity for 30 minutes a day 5 days a week and/or vigorous intensity for 20 minutes a day 3 days a week).” Ex. 1004, [0084]. In contrast to the ’615 patent’s user-customizable-goal-setting, Sirmans discloses a system for third parties to encourage individuals to comply with health promoting measures.

58. Thus, in my opinion, lululemon has not shown that the Stivorik-Kobayashi Combination teaches or suggests limitations 1[B]/11[B].

B. lululemon does not show that the Sirmans-Kobayashi Combination teaches or suggests “receiving a second activity goal for the activity time period” (Claim 7)

59. In my opinion, lululemon has not shown that the Sirmans-Kobayashi Combination teaches or suggests “receiving a second activity goal for the activity time period,” as recited in dependent claim 7.

60. As I discuss in Section XI.A, Sirmans does not disclose “receiving an activity time period,” as recited in limitations 1[B]/11[B]. For at least that reason, it is my opinion that lululemon has not shown that the Stivorik-Kobayashi Combination teaches or suggests claim 7.

XII. Grounds 4–5: lululemon Fails to Demonstrate that Stivorik or Sirmans in View of Kobayashi and Brady Renders Obvious Claims 3–5

61. In my opinion, for the same reasons I discuss above with respect to Grounds 2 and 3, lululemon has not shown that Stivorik or Sirmans in view of Kobayashi renders obvious independent claim 1. At least for the same reasons,

lululemon has not shown that Stivoric or Sirmans in view of Kobayashi and Brady renders obvious claims 3–5, which I understand depend from independent claim 1.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: September 22, 2023

Respectfully Submitted,

Robert Stone

Dr. Robert Stone, Ph.D.

APPENDIX A

SUMMARY

Dr. Stone has over thirty-eight years of academic and industry experience in the field of medical electronics systems and instrumentation. As Chief Executive Officer and founder of Medical Design Solutions, Inc, Dr. Stone is responsible for all phases of product development including concept definition, prototyping, design, evaluation, patenting and technology licensing. He is an experienced expert witness both as a background consultant and testimonial expert.

Expertise

Carbon Monoxide Monitoring	FDA Product Certification
Doppler Ultrasound	Ultrasonic Imaging
Analog Electronics	Telemetry (remote monitoring)
Medical Electronics	Newborn Hearing Screening Devices
Portable Vascular Analysis Systems	Pulse Oximetry
Pulse Oximetry Signal Processing	Technology Licensing
Invasive and non-invasive thermometry	

PROFESSIONAL EXPERIENCE

August 2022 to Present Virginia Polytechnic Institute and State University

Professor of Practice , Department of Biomedical Engineering and Mechanics. Teaching and mentoring senior Device design classes.

2011 to June 2022 Medical Design Solutions, Inc Founder and CEO

Responsible for virtually all phases of product development including concept definition, prototyping, design, evaluation, patenting, technology licensing, for various products directed at various markets.

2008 to 2011 Tronics MedTech, Inc CTO

Responsible for virtually all phases of product development including concept definition, prototyping, design, evaluation, patenting, technology licensing, for various products directed at various markets.

2004 to 2008 MedTech Development, LLC Founder, CTO

Responsible for virtually all phases of product development including concept definition, prototyping, design, evaluation, patenting, technology licensing, for various products directed at various markets.

1997 to 2004 **Pacific Consultants, LLC**
Director of Medical Electronics

Responsible for virtually all phases of product development including concept definition, prototyping, design, evaluation, patenting, technology licensing, for various products directed at various markets.

1991 to 1996 **Natus Medical, Inc.**
Vice President Research & Development, Chief Technical Officer

Responsible for all phases of new product development including concept definition, prototyping, design, clinical trials, FDA clearance, regulatory compliance including UL, CSA, CE listings, patenting and technology licensing for products directed at the pediatric hospital market. Responsibilities included contract negotiation, international distributor technical support, distributor evaluation and contract negotiations, Federal Research Grant proposal and management. Developed and patented broad patents for a new concept in breath analysis, covering design, embodiment, and a disposable element. Other achievements included:

- Conceived and guided the development of, and maintained the second generation of newborn hearing screening devices, a product that was the current backbone of the Natus product line. Worked extensively with researchers in refining and defining product specifications and performance parameters. Wrote and managed the FDA 510(k) clearance process during the peak of the FDA logjam in 1993-1994. The introduction of this product caused growth in sales to virtually double in the marketplace, and was a major factor in the company's pending profitability.
- Conceived the re-design of the company's first generation product to incorporate some of the major benefits of the second-generation product in a package, which allowed major expansion of the product market, both domestically and internationally.
- Invented a device, which can be used to diagnose the most significant contributing factor of the most common disorder present in newborns. Developed and obtained three patents covering the devices design plus a valuable disposable. Managed early clinical validation trials, expanded the concept to other applications, and executed a Federal Grant which demonstrated successfully the application of the patent to forensic breath alcohol analysis. Current plans to market this device are based upon

pressing marketplace needs and the potential application in virtually every birthing center, pediatric clinic, and emergency in the developed countries.

- Obtained a license from the Medical Research Council of the UK to a new generation of auditory screening devices, and developed the technology into a device that is generating pressing demands upon the company for launch and distribution.

1989 to 1991 MedaSonics, Inc.
Vice President Engineering

Managed a group of 15 engineers, technicians, designers in the design and development of portable vascular analysis equipment designed for clinics, hospitals, and physicians offices. Coordinated the development of specifications, project planning, cost analysis and resource allocation for multiple simultaneous projects, evaluated new technological opportunities, negotiated technology licensing and consulting agreements, participated in company directors strategic planning. Wrote several patent disclosures. Took over an engineering department that was in great disarray, faced with an urgent need for products late for a closing market window, and key engineers were leaving in frustration. Completed the urgent projects in a timely fashion, helped develop a new direction for the corporation, and defined the product lines which could provide the needed growth and stability.

1983 to 1989 Nellcor, Inc.
Manager, Electronic Research

Performed general research and development of new products in the area of blood gas monitoring, oxygen saturation, carbon dioxide gas analysis, and cardiac output. Early prototype development, clinical validation, and presentation of results to corporate officers for development selection. Wrote several patent disclosures, some of which were filed and granted, and some of which were maintained as trade secrets. Contributed to several marked advances in pulse Oximetry signal processing (two US patents issued), and developed an Oximetry telemetry system. Two of the patents were vital to market growth of Pulse Oximetry. One of the patents allowed the positioning of the second-generation product in awake, agitated, or ambulatory patients. The second patent significantly improved the product performance during physiologic transients, and is currently in use in as many as 50% of the pulse Oximeters in the world. The Oximetry marketplace expanded from critical care facilities to step down wards and general wards with the introduction of the OXINET telemetry system that was a sole contributor definition, design, and development

1981 to 1983 Virginia Polytechnic Institute and State University
Assistant Professor, Engineering

Taught classes in system analysis, instrumentation, thermodynamics, and signal analysis. Developed and taught classes in microprocessor applications in instrumentation and control. Obtained research funding in analysis of control systems for nuclear reactors.

1979 to 1981

On sabbatical from Virginia Polytechnic Institute as a NSF Fellow at Stanford University to earn Ph.D.

1971 to 1979

**Virginia Polytechnic Institute and State University
Nuclear Reactor Supervisor**

Managed and maintained a research and teaching reactor which routinely performed neutron activation analysis as a research service to university, state, and industry laboratories. Scheduled, supervised, and assisted in performing all laboratory functions, participated in University Safety Committee and Reactor Safety Committee, directly interfaced with the Nuclear Regulatory Commission, assuring compliance with all nuclear device regulations, upgraded all reactor controls, shielding, and instrumentation to allow five-fold power increase for increased laboratory sensitivity. Performed these duties while studying continually for BSEE and MSEE degrees.

1965 to 1971

**United States Navy
Nuclear Reactor Operator, Electronics Technician & Engineering
Watch Supervisor**

Highest rank achieved, Electronics Technician (Nuclear) First Class (E-6) Qualified in Officer position as Engineering watch supervisor/Engineering watch officer on the USS Bainbridge, DLG-N25. Spent two years as an instructor in nuclear theory and instrumentation at Schenectady New York Nuclear Power Prototype facility

EDUCATION

Ph.D., Electrical Engineering, Stanford University, 1981
MSEE, with distinction, Virginia Polytechnic Institute and State University, 1979
BSEE, Virginia Polytechnic Institute and State University, 1977

LITIGATION RELATED EXPERIENCE

Type of Matter: IPR
Law firm: Baker and Hostetler, LLP

Case Name: ADVANTAGE MEDICAL ELECTRONICS, LLC &
LIFESYNC CORPORATION
Petitioners v. KPR U.S., LLC
Date Filed: August 2 2022
Services provided: provided expert reports, preparing to testify at deposition
Status: on going

Type of Matter: Patent Infringement
Law Firm: Stern, Kessler, Goldstein, & Fox PLLC
Case Name: Boston Scientific vs. Nevro
Date Filed: ?
Services provided: background research, Expert Report
Testified at Deposition: not yet scheduled
Status: ongoing

Type of Matter: Patent Infringement
Law Firm: Merchant and Gould
Case Name: Masimo vs True Wearables
Date Filed: ?
Services provided: background research, Expert Report
Testified at Deposition: 1 time
Decision in favor of Plaintiff

Type of Matter: Patent Infringement
Law Firm: Lathan & Watkins, LLP
Date filed: ?
Case Name: Itamar vs Ectosense
Services Provided: background research, analysis
Status: Settled before trial or deposition.

Type of Matter:	Patent Infringement
Law Firm:	Merchant & Gould, LLP
Case Name:	Terumo v ?
Date Filed:	?/2018
Services Provided:	IPR proceedings on behalf of Terumo. Advised attorneys, interpreted technology, Writing expert report
Type of Matter:	IPR filing and patent infringement
Status:	Settled

Type of Matter:	Patent Infringement
Law Firm:	Baker Hostetler, LLP
Case Name:	Bracco Diagnostics vs Jubilant Draximage

Date Filed: 3/2018
Services Provided: IPR proceedings on behalf of Jubilant, ITC hearing - testify
Advised attorneys, interpreted technology, wrote expert report.
Testified at deposition 3 times
Testified before ITC
Status: IPR and ITC decisions on behalf of client.

Type of Matter: Patent Infringement
Law Firm: **Cooley, LLP**
Case Name: Beijing Choice v. Contec
Date Filed: ?/2018
Services Provided: IPR proceedings on behalf of Contec. Advised attorneys,
interpreted technology, wrote expert reports. Testified at
deposition 2 times
Type of Matter: IPR filing and patent infringement
Status: Ongoing

Type of Matter: Patent Infringement
Law Firm: **Latham & Watkins LLP**
Case Name: Cardionet vs Infobionic
Date Filed: 6/2015
Services Provided: IPR proceedings on behalf of Infobionics. Advised attorneys,
interpreted technology, wrote expert reports and declarations.
Testified at deposition 1 time
Type of Matter: IPR filing and patent infringement
Status: PTB find on behalf of client.
Damages for Trade theft allegation arbitration – decision for client

Law Firm: K&L Gates, LLP; Morgan, Lewis, & Bokius LLP
Case Name: INO Therapeutics v Praxair
Date Filed: 8/2014
Services Provided: IPR institution. Advised attorneys, interpreted technology, wrote
expert reports and declarations. Testified at deposition 2 times.
Testified at trial.
Type of Matter: Patent Infringement Lawsuit
Status: Verdict on behalf of client.

Law Firm: **Finnegan, Henderson, Farabow, Garrett & Dunner, LLP**
Case Name: **Syneron and Viora**
Date Filed: ?
Services Provided: Patent Infringement matter medical device for treatment of
celluliteAdvised attorneys, interpreted technology, wrote expert
reports and declarations. Deposed 1 time
Status: Settled on behalf of client

Law Firm: Kirkland and Ellis, LLP
Case Name: Medtronic Puerto Rico Operations Co. et al v. Animas Corporation, 2:12-cv-04471-RSWL-RZ (C.D. Cal.)
Date Filed: 5/22/2012
Services Provided: Patent Infringement matter involving remotely controlled insulin pump. Advised attorneys, interpreted technology, wrote expert reports and declarations. Testified at deposition
Status: Settled on behalf of client

Type of Matter: Patent Infringement
Law Firm: Kirkland and Ellis, LLP
Case Name: Medtronic Minimed Inc. at al v. Insulet Corporation, 2:12-cv-08048-PA-CW (C.D. Cal.)
Date Filed: 9/18/2012
Services Provided: Patent Infringement matter involving remotely controlled insulin pump. Advised attorneys, interpreted technology, wrote expert reports and declarations. Deposed 1 time
Status: Settled on behalf of client

Type of Matter: Whistleblower, Fraud
Law Firm: Scott Bonagofsky, Atty at Law
Case Name: United States et al v. Masimo Corporation, 2:10-cv-08169-CJC-VBK (C.D. Cal.)
Date Filed: 10/29/2010
Services provided: Advised Attorneys, analyzed technology, prepared expert report and declaration.
Status: Resolved

Type of Matter: Patent Infringement
Law Firm: Foley and Lardner, LLP
Case Name: Masimo Corporation v. Mindray DS USA, Inc. et al, 8:12-cv-02206-CJC-JPR (C.D. Cal.)
Date Filed: 12/21/2012
Services Provided: Patent Infringement matter involving frequency domain signal processing of biological signals and Oximetry electronics on behalf of defendant. Advised attorneys, interpreted technology. Deposed once.

Status: settled

Type of Matter: Patent Infringement

Law Firm: Mayer Brown LLP

Case Name: Masimo Corporation v. Philips Electronics North America Corporation et al, 1:09-cv-00080-LPS-MPT (D. Del.)

Date Filed: 2/3/2009

Services Provided: Patent Infringement matter involving frequency domain signal processing of biological signals and Oximetry electronics on behalf of defendant. Advised attorneys, interpreted technology, wrote expert reports, testified at jury trial. Deposed 4 times

Status: Settled

Type of Matter: Patent Infringement

Law Firm: Merchant and Gould, PC

Case Name: Robert Bosch Healthcare Systems, Inc. v. CardioCom, LLC, 5:12-cv-03864-EJD (N.D. Cal.)

Date Filed: 7/24/2012

Services Provided: Patent Infringement matter involving remote health monitoring systems. Prepared declarations for re-examination of patents
deposed ~ 4 times

Status: Settled on behalf of client

Type of Matter: Patent Infringement

Law Firm: Merchant and Gould, PC

Case Name: My Health, Inc. et al v. CardioCom, LLC, 13-cv-00136-RSP (E.D. Tex.)

Date Filed: 2/15/2013

Services Provided: Patent Infringement matter involving remote health monitoring systems. Prepared declarations for re-examination of patents.
Deposed ~ 4 times

Status: Settled on behalf of client

Type of Matter: Product Liability/Malpractice

Law Firm: MacDonald-Devin PC

Case Name: Guinn et al v. Nonin Medical, Inc. et al, 3:11-cv-00230 (S.D. Tex.)

Date Filed: 5/16/2011

Services Provided: Opined on performance, design and operation of Pulse Oximeter, wrote expert report

Status: Settled

PUBLICATIONS

HJ Vreman, LM Baxter, RT Stone, and DK Stevenson, "Evaluation of a fully automated end-tidal carbon monoxide instrument for breath analysis," Clin Chem, 1996 42: 50-56.

Robert T. Stone & Howard M. Berlin, "Design of VMOS Circuits with Experiments," Howard W. Sams Publications, 1980.

Robert T. Stone, "An Energy Discriminating Photon Counting Detector for Computed Tomography," Ph.D. thesis, Stanford University, 1981.

PATENTS

<u>Patent Number</u>	<u>Year Issued</u>	<u>Title</u>
8,292,800	2012	Implantable Pump system
6,694,157	2004	Method and Apparatus for Determination of pH pCO ₂ , Hemoglobin, and Hemoglobin Oxygen Saturation
6,594,511	2003	Method and Apparatus for Determining Physiological Characteristics
6,503,207	2003	Multi-Mode Audiometric Device and Associated Screening Method
6,480,729	2002	Method for Determining Blood Constituents
6,443,908	2002	Method and Apparatus for In Vivo Measurement of Carbon Monoxide Production Rate
6,368,289	2002	Acoustic Coupling Device
6,368,288	2002	Acoustic Coupling Device
D444.237	2001	Ear Coupler
5,913,309	1999	Disposable Element for Use with a Hearing

		Screeners
5,826,582	1998	Ear Phone Assembly for Use with a Hearing Screener
RE35,122	1995	Method and Apparatus for Detecting Optical Pulses
D0354808	1995	End-Tidal Carbon Monoxide Monitor Filter
5,404,885	1995	Filter Unit for End-Tidal Carbon Monoxide Monitor
5,357,971	1994	Filter Unit for End Tidal Carbon Monoxide Monitor
5,293,875	1994	In-Vivo Measurement of End-Tidal Carbon Monoxide Concentration Apparatus and Methods
5,078,136	1992	Method and Apparatus for Calculating Arterial Oxygen Saturation Based Plethysmographs Including Transients
4,934,372	1990	Method and Apparatus for Detecting Optical Pulses
4,911,167	1990	Method and Apparatus for Detecting Optical Pulses
4,869,254	1989	Method and Apparatus for Calculating Arterial Oxygen Saturation
4,869,254	1989	Method and Apparatus for Calculating Arterial Oxygen Saturation

Published Applications

	PUB. APP. NO.	Title
1	20170303808 A1	<u>Capacitive Electrocardiography (ECG) Systems</u>
2	20170303810 A1	<u>Capacitive Electrocardiography (ECG) Systems</u>
3	<u>20110288436</u>	<u>Materials and methods for insulating electronic components and services</u>
4	<u>20110160609</u>	<u>Method and system for monitoring pressure in a body cavity</u>

- 5 [20110160560](#) [Pressure sensor apparatus, system and method](#)
- 6 [20110144587](#) [Liquid agent delivery apparatus, system and method](#)
- 7 [20090312785](#) [Implantable Pump System](#)
- 8 [20080275525](#) [Method and system for regulating respiration by means of simulated action potential](#)
- 9 [20080161875](#) [Gastric restriction method and system for treatment of eating disorders](#)
- 10 [20060287679](#) [Method and system to control respiration by means of confounding neuro-electrical s](#)
- 11 [20060173508](#) [Method and system for treatment of eating disorders by means of neuro-electrical co](#)
- 12 [20060111755](#) [Method and system to control respiration by means of neuro-electrical coded signals](#)
- 13 [20060064137](#) [Method and system to control respiration by means of simulated action potential sign](#)
- 14 [20030208196](#) [Control system for limited-use device](#)
- 15 [20010049477](#) [Method and apparatus for in vivo measurement of carbon monoxide production rate](#)
- 16 [20010037059](#) [Method and apparatus for determining physiological characteristics](#)
- 17 [20010037058](#) [Method for determining blood constituents](#)
- 18 [20010036277](#) [Audiometric apparatus and associated screening method](#)
- 19 [20010034494](#) [Acoustic coupling device](#)
- 20 [20010034493](#) [Multi-mode audiometric device and associated screening method](#)
- 21 [20010034492](#) [Acoustic coupling device](#)
- 22 [20010033220](#) [Security control method and system](#)

Recent Patent Status

TITLE	COUNT RY	APP./PAT. NO. PRIORITY/ISSU E DATE	REFERENCE	STATUS
<i>Respiration Monitoring System and Method</i>	USA	10,064,570 09.04.2018	MDS-02-010	<i>Issued; 3.5 Year Maintenance Fee Due 04 March 2022</i>
<i>Respiration Monitoring System and Method</i>	USA	10,314,517 06.11.2019	MDS-02- 010CON1	<i>Issued; 3.5 Year Maintenance Fee Due 10 December 2022</i>
<i>Wearable Monitoring System and Methods for Determining Respiratory and Sleep Disorders with Same</i>	USA	16/363,290 03.25.2019	MDS-02- 010C1/CIP1	<i>Pending; Issue Fee Paid</i>

TITLE	COUNTRY	APP./PAT. NO. PRIORITY/ISSUE DATE	REFERENCE	STATUS
<i>Wearable Monitoring System and Methods for Determining Respiratory and Sleep Disorders with Same</i>	USA	10,993,638 05.04.2021	MDS-02-010C1/CIP2	<i>Issued; 3.5 Year Maintenance Fee Due</i> <u>04 November 2024</u>
<i>Wearable Physiological Monitoring System</i>	USA	16/419,358 05.22.2019	MDS-02-010C1/CIP3	Pending; <i>Issue Fee Paid</i>
<i>Wearable Physiological Monitoring System</i>	USA	17/518,053 11.03.2021	MDS-02-010C1/CIP3/C1	Pending;
<i>Wearable Physiological Monitoring System</i>	EC	20776824.3 10.13.2021	MDS-03-010C1/CIP3/EC	Pending; Renewal due <u>March 20, 2022</u>
<i>Wearable Physiological Monitoring System</i>	Canada	3,133,993 09.16.2021	MDS-03-010C1/CIP3/CA	Pending; Renewal due <u>March 20, 2022</u>
<i>Wearable Physiological Monitoring System</i>	Japan	2021-557317 09.24.2021	MDS-03-010C1/CIP3/JP	Pending;

PROFESSIONAL AFFILIATIONS & AWARDS

Member, Campbell Church of Christ

Elder for a Congregation of approximately 450 members

Member IEEE

Inactive member, SPIE

Inactive member American Nuclear Society

National Science Foundation Fellow

Student member of Phi Kappa Phi, Eta Kappa Nu and Tau Beta Phi Honor Societies