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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

OMNI MEDSCI, INC., *Plaintiff*, v. **APPLE INC.**, *Defendant*.	Case No. 3:20-cv-00563 **COMPLAINT FOR PATENT INFRINGEMENT** **DEMAND FOR JURY TRIAL**

Plaintiff, Omni MedSci, Inc. ("Omni MedSci"), alleges as follows:

The Parties

1. Plaintiff Omni MedSci is a Michigan corporation having its principal place of business at 1718 Newport Creek Drive, Ann Arbor, Michigan 48103. Dr. Mohammed N. Islam is the principal of Omni MedSci. Dr. Islam is a tenured Professor of Optics and Photonics in the Electrical and Computer Engineering Department, and a Professor of Biomedical Engineering, at the University of Michigan's College of Engineering. Omni MedSci is part of the Omni family of companies, which create, develop, and commercialize Dr. Islam's optical technology in various fields. The Omni companies also develop and provide unique optical products to the U.S. Department of Defense and intelligence community.

2. Defendant Apple Inc. ("Apple") is a California corporation, having a regular and established place of business at 1 Infinite Loop, Cupertino, California 95014. Apple may be served with process through its registered agent for service of process C T Corporation System (C0168406).

Jurisdiction and Venue

3. This is a complaint for patent infringement under 35 U.S.C. §§ 101, *et seq*. The Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338.

4. The court has personal jurisdiction over Apple, and venue under 28 U.S.C. §§1391(a)(1) and 1400(b) is proper in this district, because Apple has a regular and established place of business in this district and because Apple offers for sale and sells infringing Apple Watches in this district.

The Patent-in-Suit

5. On December 31, 2019, the U.S. Patent and Trademark Office issued U.S. Patent No. 10,517,484 ("the '484 patent") (Exhibit A) to Dr. Mohammed N. Islam.

6. The '484 patent is the "Patent-in-Suit."

7. Omni MedSci has been, and is, the owner by assignment of the Patent-in-Suit.

Background Facts

8. By 2012, Omni MedSci had invented technology for using lasers in medical and other applications, including wearable measurement devices incorporating lasers and other components that can detect and monitor physiological parameters such as glucose, ketones, heart rate, blood constituents, and dental caries.

9. On December 31, 2012, Omni MedSci filed a set of patent applications covering its developments using lasers for medical and other applications.

10. Between June 2014 and July 2016, Dr. Islam had a series of meetings and email exchanges with Apple personnel regarding the technology underlying his then-pending patent applications, including the now-issued Patent-in-Suit. In those exchanges, Apple was offered the opportunity to license or acquire Omni MedSci's patented and patent-pending technology, but Apple declined.

11. On June 11-12, 2014, Dr. Islam met with Apple employees Drs. Michael O'Reilly and Michael Hillman at Apple's headquarters in Cupertino, California to discuss Omni MedSci's then patent-pending technology.

12. Dr. Hillman then arranged for a meeting with Dr. Islam and approximately ten Apple employees at Apple's headquarters in Cupertino, California to discuss technical details of Omni MedSci's then patent-pending technology. The meeting took place at Apple on February 5, 2015.

13. On July 14, 2016, Apple employee Greg Joswiak emailed Dr. Islam inviting him to provide additional information about his technology. Mr. Joswiak indicated that he would share the information with his team at Apple.

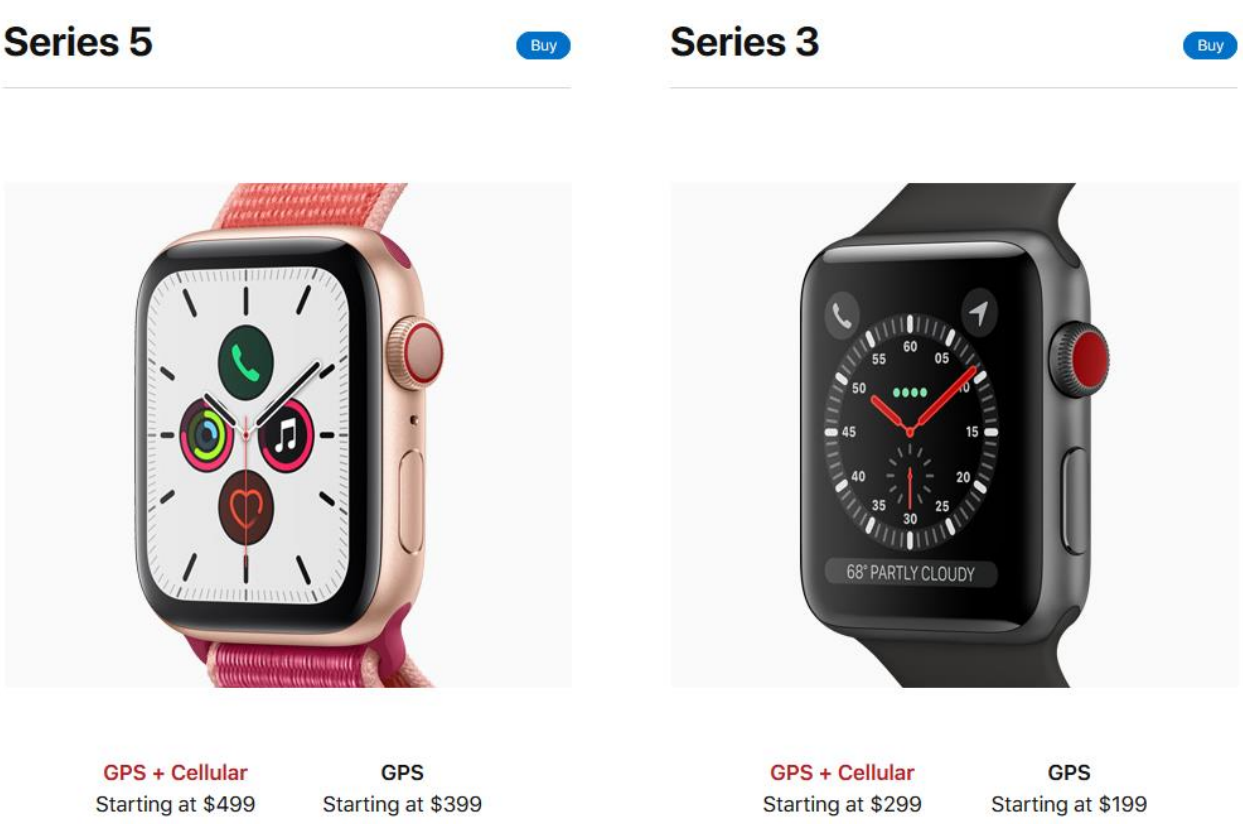
14. Four days later, Apple employees Drs. Ed Hull and Shonn Hendee arranged a meeting with Dr. Islam and approximately ten Apple employees at Apple's headquarters in Cupertino, California to discuss technical details of Omni MedSci's then patent-pending technology. The meeting took place at Apple on July 18, 2016. At the meeting, Dr. Islam shared the published patent applications for predecessors of the '484 patent.

15. Dr. Islam continued to correspond with Apple employees regarding the status of his pending patent applications and technological development. On December 21, 2017, Dr. Islam emailed Drs. O'Reilly, Hull, and Hendee enclosing copies of the allowed claims for predecessors of the '484 patent. In response, Dr. O'Reilly emailed Dr. Islam stating, "We [Apple] don't wish to receive any information about any of your IP [Intellectual Property]."

Apple's Infringing Apple Watch Products

16. On information and belief,[1] Apple has made and sold several models of its Apple Watch product. In this lawsuit, Omni MedSci asserts infringement by Apple's Series 3 and Series 5 watches, because, on information and belief, they are the only models Apple currently sells (collectively, "Watches"). Exemplary Watches advertised on Apple's web site (https://www.apple.com/watch/compare/, captured on January 8, 2020) are shown below:

[1] For allegations based on information and belief, Omni MedSci believes that the allegations will have evidentiary support after a reasonable opportunity for investigation and discovery.



17. The Watches are wearable devices that measure a physiological parameter, namely, heart rate.

18. The Watches measure heart rate non-invasively using light emitting diodes ("LEDs").

19. In use, the Watches are paired with and communicate with Apple iPhones.

20. The Watches are worn on a user's wrist.

21. The Watches can improve the signal-to-noise ratio of the LED light reflected from the skin by increasing the intensity of the light emitted from the LEDs.

22. The Watches can also improve the signal-to-noise ratio of the LED light reflected from the skin by increasing the pulse rate of the LEDs.

23. The Watches have one or more lenses that deliver the light from the LEDs to a Watch wearer's skin.

24. The Watches have at least two spatially separated detectors that receive LED light reflected from the skin.

25. The detectors in the Watches can be synchronized to the LED light sources.

26. The detectors in the Watches capture light while the LEDs are off.

27. The Watches have one or more analog to digital converters that process the reflected light received by the detectors.

28. The Watches can compare the light captured while the LEDs are off and the light captured from the LED light reflected from the skin.

29. The Watches include an amplifier to improve detection sensitivity.

30. The Watches can communicate heart rate information to a paired iPhone and that paired iPhone can store the heart rate information in iCloud.

Count 1 – Infringement of the ‘484 Patent

31. Omni MedSci reasserts and incorporates the allegations contained in the paragraphs above.

32. Apple has directly infringed and is directly infringing the ‘484 patent by making using, offering for sale, and selling the Watches, and importing the Watches into the United States.

33. Based on publicly available information, the Watches infringe at least claims 1-4, 7-12, and 16-21 and of the ‘484 patent. Omni MedSci may assert additional claims of the ‘484 patent after a reasonable opportunity for investigation and discovery.

34. Apple’s infringement is described further below with respect to exemplary claim 7. The analysis below is based on publicly available information.

35. Claim 7 recites: “A system for measuring one or more physiological parameters and for use with a smart phone or tablet.” The Watches Apple sells include a measurement

device that can measure heart rate, which is a physiological parameter. The Watches can be paired with an iPhone. *See, e.g.*, support.apple.com/en-us/HT204666.

36. Claim 7 further recites: "a wearable device adapted to be placed on a wrist or an ear of a user, including a light source comprising a plurality of semiconductor sources each of the semiconductor sources configured to generate an output light having one or more optical wavelengths." The Watches are designed to be worn on a user's wrist and use multiple light emitting diodes for measuring the heart rate. *See, e.g.*, support.apple.com/en-us/HT204666, U.S. Pub. No. 2017/0281024, and U.S. Pub. No. 2016/0058367.

37. Claim 7 further recites: "the wearable device comprising one or more lenses configured to receive a portion of at least one of the output lights and to deliver a lens output light to tissue." The Watches include one or more lenses that receive the light from the LEDs and deliver a portion of that light to a wearer's skin. The lenses can be seen in the images of the accused Watches, below:

Series 5

Series 3

38. Claim 7 further recites: "the wearable device further comprising a detection system configured to receive at least a portion of the lens output light reflected from the tissue and to generate an output signal having a signal-to-noise ratio, wherein the detection system is

configured to be synchronized to the light source." On information and belief, The Watches include a detection system that receives part of the light reflected from a wearer's skin. The detection system generates an output signal, which has a signal-to-noise ratio and can be synchronized to the light source. *See, e.g.*, support.apple.com/en-us/HT204666 and U.S. Pub. No. 2016/0058367.

39. Claim 7 further recites: "wherein the detection system comprises a plurality of spatially separated detectors, and wherein at least one analog to digital converter is coupled to at least one of the spatially separated detectors." The Watches include two (for Series 3) or eight (four Series 5) detectors. Each detector is separated from the others in space. On information and belief, the Watches include at least one analog-to-digital converter coupled to at least one of the detectors. *See, e.g.*, support.apple.com/en-us/HT204666, U.S. Pub. No. 2016/0058367, U.S. Pub. No. 2016/0058312, and U.S. Pub. No. 2016/0038045.

40. Claim 7 further recites: "the smart phone or tablet comprising a wireless receiver, a wireless transmitter, a display, a speaker, a voice input module, one or more buttons or knobs, a microprocessor and a touch screen, the smart phone or tablet configured to receive and process at least a portion of the output signal, wherein the smart phone or tablet is configured to store and display the processed output signal." Apple's iPhone's, which can be paired with the Watches, have a wireless receiver, a wireless transmitter, a display, a speaker, a voice input module, one or more buttons or knobs, a microprocessor and a touch screen. An iPhone can receive and process data (*e.g.*, heart rate information) from the Apple watch and store and display the processed data. *See, e.g.*, support.apple.com/en-us/HT204666; U.S. Pub. No. 2016/0058312.

41. Claim 7 further recites: "wherein at least a portion of the processed output signal is configured to be transmitted over a wireless transmission link." An iPhone can transmit heart rate information from a paired Watch over a wireless transmission link to Apple's iCloud. *See,*

e.g., support.apple.com/en-us/HT204666; www.imore.com/how-sync-your-health-data-ios-11-and-how-it-works; U.S. Pub. No. 2016/0058312.

42. Claim 7 further recites: "a cloud configured to receive over the wireless transmission link an output status comprising the at least a portion of the processed output signal, to process the received output status to generate processed data, and to store the processed data." Apple sells a system, which includes the Apple iCloud that can receive over a wireless transmission link an output status comprising at least a portion of the processed data transmitted from Apple iPhones. The Apple iCloud can then process the transmitted output status to generate and store data such as heart rate information. *See, e.g.*, support.apple.com/en-us/HT204666; www.imore.com/how-sync-your-health-data-ios-11-and-how-it-works.

43. Claim 7 further recites: "wherein the output signal is indicative of one or more physiological parameters." The output signal from the Watches represents, *inter alia*, the wearer's heart rate. *See, e.g.*, U.S. Pub. No. 2016/0058367.

44. Claim 1 further recites: "the wearable device configured to increase the signal-to-noise ratio by increasing light intensity of at least one of the semiconductor sources from an initial light intensity and by increasing a pulse rate of at least one of the semiconductor sources from an initial pulse rate." On information and belief, the Watches have the ability to improve the signal-to-noise ratio of the output signal "by increasing both LED brightness [light intensity] and sampling rate [pulse rate]." *See, e.g.*, support.apple.com/en-us/HT204666.

45. Claim 7 further recites: "the detection system further configured to: generate a first signal responsive to light received while the semiconductor sources are off, generate a second signal responsive to light received while at least one of the semiconductor sources is on." On information and belief, the Watches include can capture light while the LEDs are off and convert the captured light into a first signal and capture light while at least one of the LEDs is on

and convert the captured light into a second signal. *See, e.g.*, support.apple.com/en-us/HT204666 and U.S. Patent Publication No. 2016/0058367.

46. Claim 7 further recites that the system can "increase the signal-to-noise ratio by comparing the first signal and the second signal." On information and belief, the Watches can increase the signal-to-noise ratio by comparing the first signal and the second signal. *See, e.g.*, U.S. Patent Publication No. 2016/0058367.

Count 7 – Willful Infringement

47. Omni MedSci reasserts and incorporates the allegations contained in the paragraphs above.

48. Based on the communications and meetings between Dr. Islam and Apple personnel, Apple knew of its infringement of the Patent-in-Suit or was willfully blind to its infringement.

49. Apple's infringement of the Patent-in-Suit has been willful.

Demand for Relief

WHEREFORE, Omni MedSci requests entry of judgment against Apple as follows:

A. Finding Apple liable for infringement of the Patent-in-Suit and that the infringement has been willful;

B. Awarding Omni MedSci damages under 35 U.S.C. § 271 adequate to compensate for Apple's infringement;

C. Permanently enjoining Apple, together with any officers, agents, servants, employees, and attorneys, and such other persons in active concert of participation with them, who receive actual notice of the Order, from further infringement of the Patent-in-Suit;

D. A declaration this case is exceptional within the meaning of 35 U.S.C. § 285 and awarding Omni MedSci its reasonable attorney fees, costs, and disbursements;

E. Awarding Omni MedSci interest on all damages awarded; and

F. Granting Omni MedSci all other relief to which it is entitled.

Demand for Jury Trial

Omni MedSci demands trial by jury for all issues so triable.

Dated: January 24, 2020

Respectfully submitted,

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