



DECLARATION OF GORDON MACPHERSON

I, Gordon MacPherson, am over twenty-one (21) years of age. I have never been convicted of a felony, and I am fully competent to make this declaration. I declare the following to be true to the best of my knowledge, information and belief:

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2. IEEE is a neutral third party in this dispute.
3. I am not being compensated for this declaration and IEEE is only being reimbursed for the cost of the article I am certifying.
4. Among my responsibilities as Director Board Governance & IP Operations, I act as a custodian of certain records for IEEE.
5. I make this declaration based on my personal knowledge and information contained in the business records of IEEE.
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8. The article below has been attached as Exhibit A to this declaration:

A.	Y. Mendelson and B.D. Ochs, “Noninvasive pulse oximetry utilizing skin reflectance photoplethysmography”, IEEE Transactions on Biomedical Engineering, Vol. 35, Issue 10, October 1988.
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9. I obtained a copy of Exhibit A through IEEE Xplore, where it is maintained in the ordinary course of IEEE’s business. Exhibit A is a true and correct copy of the Exhibit, as it existed on or about April 30, 2021.
10. The article and abstract from IEEE Xplore show the date of publication. IEEE Xplore populates this information using the metadata associated with the publication.

11. Y. Mendelson and B.D. Ochs, "Noninvasive pulse oximetry utilizing skin reflectance photoplethysmography" was published in IEEE Transactions on Biomedical Engineering, Vol. 35, Issue: 10. IEEE Transactions on Biomedical Engineering, Vol. 35, Issue: 10 was published in October 1988. Copies of this publication was made available no later than the last day of the publication month. The article is currently available for public download from the IEEE digital library, IEEE Xplore.

12. 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 further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

I declare under penalty of perjury that the foregoing statements are true and correct.

Executed on: 5/3/2021

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The major concern in developing a sensor for reflectance pulse oximetry is the ability to measure large and stable photoplethysmograms from light which is backscattered from the skin. Utilizing a prototype optical reflectance sensor, locally heating the skin is shown to increase the pulsatile component of the reflected photoplethysmograms. Additional improvements to signal-to-noise ratio were achieved by increasing the active area of the photodetector and optimizing the separation distance between the light source and photodetector. The results from a series of in vivo studies to evaluate a prototype skin-reflectance pulse oximeter in humans are presented.< >

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