



DECLARATION OF GORDON MACPHERSON

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8. The article below has been attached as Exhibit A to this declaration:

| | |
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| A. | Y. Mendelson and C. Pujary, “Measurement site and photodetector size considerations in optimizing power consumption of a wearable reflectance pulse oximeter”, Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, September 17 – 21, 2003. |
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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 shows the date of publication. IEEE Xplore populates this information using the metadata associated with the publication.
11. Y. Mendelson and C. Pujary, "Measurement site and photodetector size considerations in optimizing power consumption of a wearable reflectance pulse oximeter" was published in the Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. The 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society was held from September 17 – 21, 2003. Copies of the conference proceedings were made available no later than the last day of the conference. 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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Abstract: Site selection and power consumption play a crucial role in optimizing the design of a wearable pulse oximeter for long-term telemedicine application. In this study we investigated the potential power saving in the design of a reflectance pulse oximeter taking into consideration measurement site and sensor configuration. In-vivo experiments suggest that battery longevity could be extended considerably by employing a wide annularly shaped photodetector ring configuration and performing SpO₂ measurements from the forehead region.

Published in: Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE Cat. No.03CH37439)

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Figures

References

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Contents

1. Introduction

Noninvasive pulse oximetry is a widely accepted method for monitoring arterial hemoglobin oxygen saturation (SpO₂). Oxygen saturation is an important physiological variable since insufficient oxygen supply to vital organs can quickly lead to irreversible brain damage or result in death.

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