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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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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.
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# Measurement site and photodetector size considerations in optimizing power consumption of a wearable reflectance pulse oximeter

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### Abstract

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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 SpO<sub>2</sub> 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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### 1. Introduction

Noninvasive pulse oximetry is a widely accepted method for monitoring arterial hemoglobin oxygen saturation (SpO<sub>2</sub>). 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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