

## Oxygen Saturation Monitor Model Design for Freediving Implementation

**K.R. Razzhivina, A.V. Kamarchuk, D.S. Shiryaev**

Institute of Advanced Data Transfer Systems, ITMO University, Kronverkskiy pr., 49, lit. A, St. Petersburg, 197101, Russia

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Corresponding author: [K.R. Razzhivina](mailto:K.R. Razzhivina)

**Abstract.** This paper describes the operation model of reflectance oxygen saturation monitor for freediving implementation and its dependence on distance and interposing media between the monitor and human skin. The model includes two LEDs with peak radiation wavelengths 660 nm and 940 nm and two photodiodes with peak sensitivity at 940 nm, interposing medium layer with air, water or silica glass parameters and seven skin layers. The modeling is executed by Monte-Carlo method for the cases of air, glass and water as interposing medium and its various width in range from 2 mm to 8 mm which is chosen due to the planned case construction. The energy fluxes ratio dependence on distance between the photodiodes and skin is evaluated and analyzed.

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