Steady-state total diffuse reflectance with an exponential decaying source.

The increasing preclinical and clinical utilization of digital cameras for photographic measurements of tissue conditions motivates the study of reflectance measurements obtained with planar illumination. We examine herein a formula that models the total diffuse reflectance measured from a semi-infinite medium using an exponentially decaying source, assuming continuous plane wave epi-illumination. The model is validated with experimental reflectance measurements from tissue mimicking phantoms. The need for adjusting the blood absorption spectrum due to pigment packaging is discussed along with the potential applications of the proposed formulation.
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