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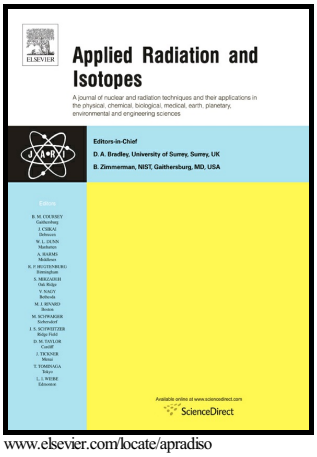

www.elsevier.com/locate/apradiso

PII: S0969-8043(18)30443-3
DOI: https://doi.org/10.1016/j.apradiso.2018.09.010
Reference: ARI8480

To appear in: *Applied Radiation and Isotopes*

Received date: 10 May 2018
Revised date: 8 September 2018
Accepted date: 10 September 2018

Cite this article as: J.G. Gutiérrez-Marquez, L.Y. Avalos-Piña, A. López-Valencia, L.L. Palacios-Pérez, H.R. Vega-Carrillo and T. Rivera-Montalvo, OSL dosimeters for dental panoramic radiography, *Applied Radiation and Isotopes,* https://doi.org/10.1016/j.apradiso.2018.09.010

OSL dosimeters for dental panoramic radiography

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Abstract

The aim of the present work is to determine dosimetric characteristics of commercial optically stimulated luminescence dosimeter (OSLD) to estimate equivalent dose in the patient undergoing panoramic radiography procedure. Digital panoramic unit "Instrumentarium OP200D" was used. OSL dosimeters were optically bleached before any exposure procedure. InLight™ OSL nanodosimeters were placed on the thyroid surface between the head and neck. The exposure parameters for all measurements was standard value consisted in 66 kV, 5 mA, and 14.1 s. Standard size field of view (FOV) scanning mode was used. Dosimeters were calibrated for the air kerma. Reported male adult equivalent doses from 21 to 45 μSv for each scanning for standard size field of view (FOV). Meanwhile reported female adult equivalent doses from 28 to 75 μSv for standard size field of view (FOV) considering all heights. The lowest equivalent dose (21 μSv) was observed in the male thyroid gland surface (S) position for medium height. The highest equivalent dose (75 μSv) was for female small height in the right parotid surface (R) position. In conclusion, the results demonstrate that OSL dosimeters are appropriate in vivo dosimetry system for dental panoramic dose measurements.