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PAPER TITLE SHORT-TERM ENVIRONMENTAL MEASUREMENTS WITH THE  
HIGH SENSITIVE THERMOLUMINESCENT DOSEMETERS

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ABSTRACT (See instructions overleaf)

Considering that average environmental daily doses are in the range of 1-5  $\mu$ Gy, it was performed an experiment to check the real capability of the ultra sensitive TL phosphors to detect extremely low doses. The results obtained with four types of TL dosimeters such as LiF:Mg,Cu,P (GR-200A), solid sintered CaSO<sub>4</sub>:Dy (TLD-2000H), CaSO<sub>4</sub>:Tm (TLD-2001H), and Al<sub>2</sub>O<sub>3</sub>:C (TLD-500K), as well as two types of electronic dosimeters, have been studied, taking high pressure ionisation chamber as the reference instrument. The evaluation was performed using different types of TLD readers.

The experiments were also performed in order to study the additivity, stability and the possibility to detect small variations in daily doses for different exposure periods, from one week to 3 months period.

The dosimeters were exposed to environmental radiation at the selected locations: inside the Institute Vinča, on the site of the Accelerator Installation (in construction) to establish the zero point levels with respect to dose rates, two years before starting, and at the standard environmental measuring location, 1.5km far from the Institute.

It was found that all the dosimeters were capable of reliably measuring these very low doses after an exposure of 1 day, without performing special measurement procedures.