

## Calibration of radon dosimetry system with radon chamber in self-decay mode

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Radon is estimated to cause a significant portion of all cancer cases in Europe causing avoidable deaths. To minimize the public exposure to radon in Slovakia, the Slovak University of Technology in Bratislava (STU) in close cooperation with and Slovak Institute of Metrology (SMU) started collaborating on the development and implementation of a certified methodology on radon dosimetry utilizing solid-state nuclear track detectors. The SMU operates the Air Radon Secondary Standard comprising a radon chamber operated in self-decay mode and calibrated radon atmosphere monitoring system AlphaGUARD. To complement the Air Radon Standard, the STU laboratory acquired the TASLImage™ system for radon and neutron dosimetry, TASTRAK CR-39 type detectors, and diffusion containers. The analysis is focused on the determination of calibration factors for original and self-developed diffusion chambers and the TASLImage™ system for average radon activities of 1 kBq.m<sup>-3</sup> and different irradiation times varying from 12 hours to 21 days. The comparison of the performance of the two diffusion chambers is provided and in addition, the spatial distribution of the radon concentration in the irradiation chamber is evaluated.

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