

**CONTINUOUS MONITORING SYSTEMS FOR INDOOR RADON
MEASUREMENT: CONSTRUCTION AND RESULTS OF THEIR TESTING**

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ABSTRACT

Two continuous radon monitoring systems were built on the basis of the scintillation chambers. The first system used the large volume scintillation chamber with volume 4.5 liters and the second one the commercial scintillation chamber with volume 1 liter as the detectors for radon concentration measurement. Both systems were calibrated by Ward-Borak method. The detection limits of monitoring systems are $2.9 \text{ Bq}\cdot\text{m}^{-3}$ and $5.1 \text{ Bq}\cdot\text{m}^{-3}$ respectively, at - 2 hour counting period and 30 % statistical uncertainty.

The radon monitoring systems and the professional radon monitor AlphaGUARD were tested in real conditions of working room. The testing showed that long-term courses of radon activity concentrations obtained by all three monitors are highly correlated ($R^2 \sim 0.95$). Also the average values of radon activity concentrations calculated on the basis of measured data are identical in the scope of counting errors already at measurement of the radon activity concentrations in range of $(10 - 120) \text{ Bq}\cdot\text{m}^{-3}$.

Key words: indoor radon, radon monitor, radon variation, continual measurement, calibration