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**Title:** Calibration of natural gamma-ray spectrometer facility at the ERL

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**Abstract:** Gamma-ray spectrometer facility at the Energy Research Laboratory (ERL) is used for the determination of natural radioactivity from potassium (K-40), uranium (U-238), and thorium (Th-232) in soil, core, and various other industrial samples. The facility consists of a 5 " x5 " NaI(Tl) detector and the electronic setup coupled to a PC-based data acquisition and analysis system. The gamma-ray spectrometer facility was calibrated using 12 certified standard samples from IAEA (Vienna), NIST, and NBL (U.S.A.). The sensitivity of the setup was found to be better than 1 ppm for U and Th and 150 ppm for K considering 100 g sample. Linear calibration curves were established from measurements carried out for potassium, uranium, and thorium.