



## AT1135 Portable Radiometric Laboratory

AT1135 Portable Radiometric Laboratory is a hand-carried measurement instrument of spectrometric type and is designed to determine relative activity of <sup>134</sup>Cs, <sup>137</sup>Cs and <sup>40</sup>K gamma-emitting radionuclides in food products as well as in-situ measurement of ambient gamma radiation dose rate equivalent.

### Operating principle

The unit has scintillation detector with NaI(Tl) crystal Ø25x40mm size inside lead protection. The unit automatically checks sample radionuclide content during sample radiometric radionuclide monitoring. The identification results are used for sample radionuclides activity calculation. Gamma ray instrument spectra are processed in "HomeRadLab" Software.

When the unit is in Dosimetry Mode (Detection unit is retracted from the lead protection) highly sensitive detector reacts instantly to the slightest ambient radiation level change relative to natural radiation background and measures it correctly.

All measurements and processing results are displayed on PC monitor in real-time pattern.

### Specification

Detector	Scintillator, NaI(Tl) Ø25x40 mm
Registered gamma radiation energy range in radiometric mode	50keV...1.5MeV
Radionuclide specific activity measurement ranges for samples with 1 g/cm <sup>3</sup> density (measurement geometry: 0.5-litre Marinelli beaker)	
<sup>134</sup> Cs	25...1·10 <sup>5</sup> Bq/kg
<sup>137</sup> Cs	25...1·10 <sup>5</sup> Bq/kg
<sup>40</sup> K	360...2·10 <sup>4</sup> Bq/kg
Intrinsic relative error of <sup>134</sup> Cs, <sup>137</sup> Cs and <sup>40</sup> K specific activity measurement	±30% max.
Measured sample density range	0.5...1.5 g/cm <sup>3</sup>
Ambient gamma radiation dose equivalent rate measuring range (Detection unit is not covered by lead protection)	0.03...300 µSv/h
Intrinsic relative error of gamma radiation dose rate measurement	±20% max.
Energy dependence for gamma radiation ambient dose equivalent rate measurement	±20% max. (for energy range 50 keV...3 MeV)
Relative energy resolution for <sup>137</sup> Cs	9% max.
Maximum input statistical load	≥5·10 <sup>4</sup> s <sup>-1</sup>
Number of ADC channels	512
Operation mode setup time	≤20 min
Continuous run time	≥24 h
Working temperature range	0°C...+40°C
Relative air humidity with temperature ≤35°C without condensation	≤75 %
Protection class	IP54
Connection to PC	USB
Overall dimensions, weight	
Detection unit	Ø60x296 mm, 0.6 kg
Protection unit	200x200x437 mm, 13 kg
USB-DU adapter	95x51x33 mm, 0.1 kg

