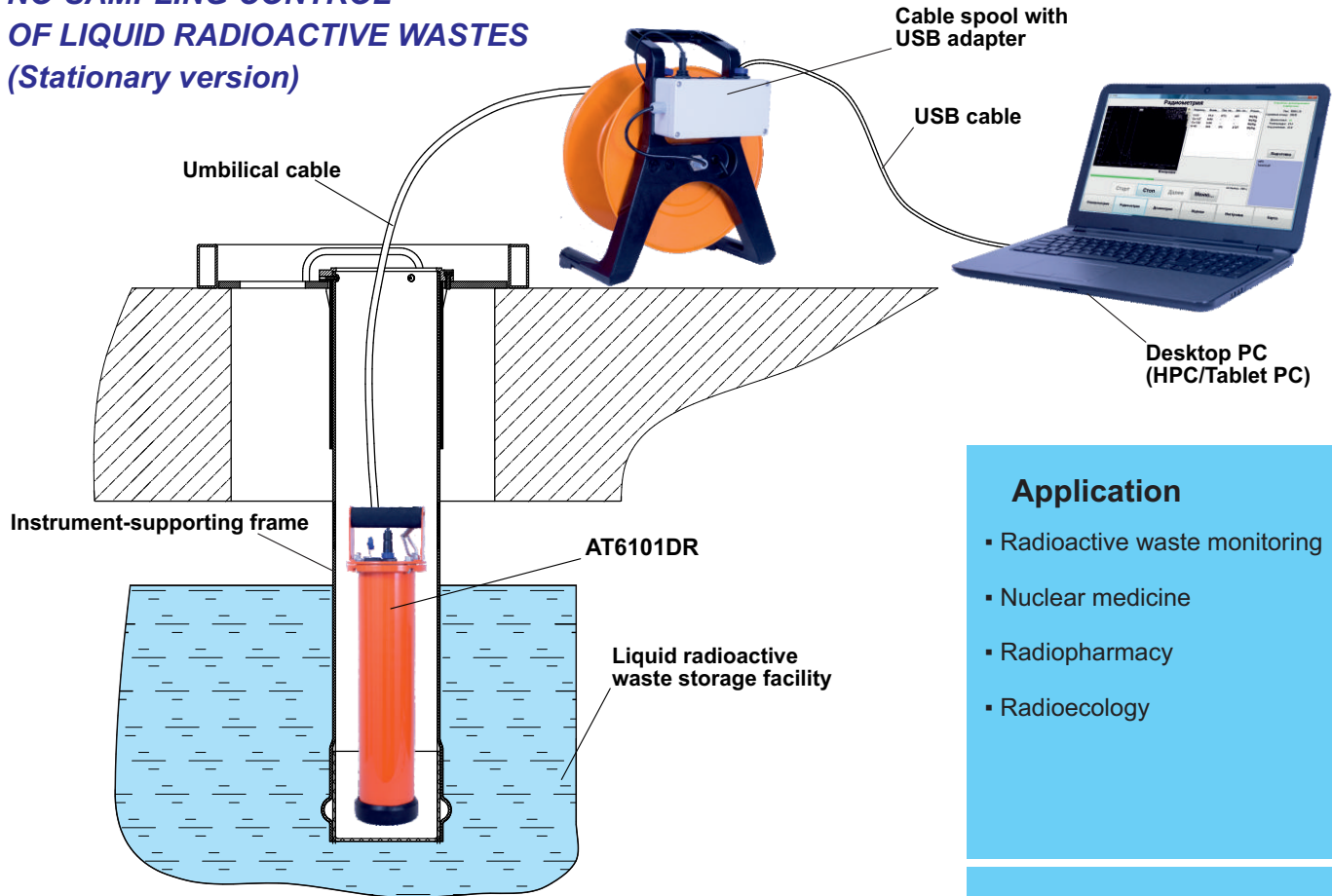


AT6101DR Spectrometer

NO-SAMPLING CONTROL OF LIQUID RADIOACTIVE WASTES (Stationary version)



This version of AT6101DR Multifunction portable spectrometer can be used for identification of radionuclides and specific activity measurement of ^{137}Cs , ^{134}Cs , ^{131}I and ^{40}K radionuclides in liquid radiation wastes.

No sampling needed for all measurements.

This spectrometer can also be used for in situ measurement of gamma radiation ambient dose equivalent rate.

Operating principle

The detection device sealed inside a shock-resistant, dust-and-moisture-proof container registers gamma radiation of controlled radionuclides. Spectrometric data from the detection device is sent via cable to a Desktop PC and displayed on its screen.

Handheld PC or Tablet PC can be used instead of Desktop PC. In this case replace the USB adapter on the cable spool by Bluetooth adapter.



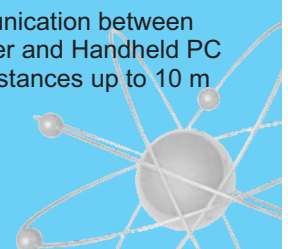
Instrumental spectra processing algorithm software allows radioisotope composition data displayed in form of specific activity of certain radionuclides or their concentration, specific effective activity of natural radionuclides. The value of gamma radiation ambient dose equivalent rate in inspection point is determined by means of instrument spectrum analysis with "spectrum-dose" operational function.

Application

- Radioactive waste monitoring
- Nuclear medicine
- Radiopharmacy
- Radioecology

Features

- Available measuring geometries: 4π
- Instant detection of near background dose rate level increase
- Automatic LED stabilization and temperature compensation
- Starting and calibration procedure using naturally occurring ^{40}K radionuclide
- Expert mode for detailed spectrum analysis with automatic radionuclide identification
- All measurement data can be further processed by GARM software
- Measurement results can be displayed in Bq/kg (^{137}Cs , ^{134}Cs , ^{131}I , ^{40}K)
- Wireless communication between Bluetooth adapter and Handheld PC (Tablet PC) at distances up to 10 m



ATOMTEX[®]
Instruments and Technologies for Nuclear
Measurements and Radiation Monitoring



Zievert

Ionizing radiations
detectors and
instruments

AT6101DR Spectrometer

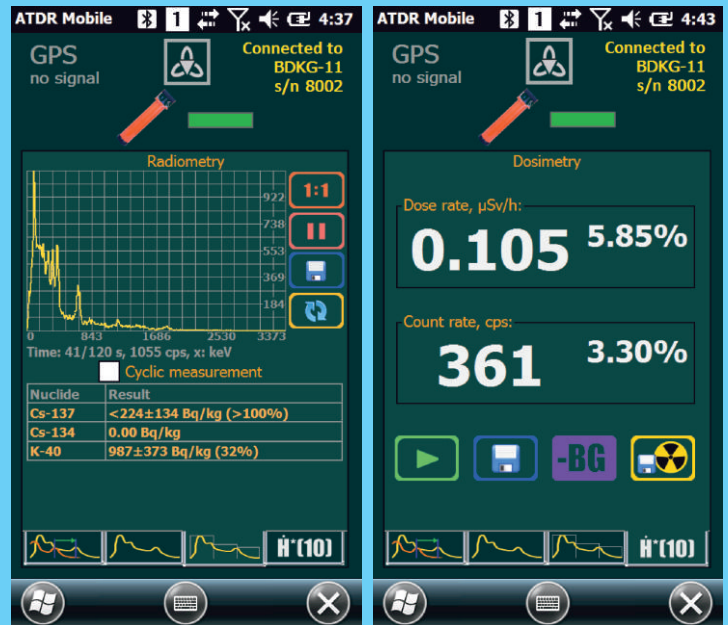
Specifications

Gamma radiation detector	Scintillation NaI(Tl) Ø63x63 mm
Energy range	50 keV – 3 MeV
Specific activity measurement range for 4π measurement geometry:	
^{134}Cs и ^{137}Cs	50 – 10 ⁶ Bq/kg
^{131}I	30 – 10 ⁶ Bq/kg
^{40}K	50 – 10 ⁴ Bq/kg
Limits of tolerable intrinsic relative error of activity measurement	±20%
Typical resolution at 662 keV (^{137}Cs)	8%
Maximum input statistical load	≥5·10 ⁴ s ⁻¹
Number of ADC channels	1024
Measurement range of ambient dose equivalent rate	0.03 – 130 μSv/h
Limits of tolerable intrinsic relative error of dose rate measurement	±20%
Typical sensitivity to gamma radiation	
^{241}Am	11600 cps/(μSv·h ⁻¹)
^{137}Cs	2200 cps/(μSv·h ⁻¹)
^{60}Co	1200 cps/(μSv·h ⁻¹)
Response time for dose rate measurement is from 0.1 to 1 μSv/h.	<2 s
Integral nonlinearity	≤1%
Initialisation time	1 min
Continuous run time in normal conditions	≥9 h
Measurement instability during continuous operation	≤1%
Burn-up life	≥100 Sv
Protection rating	IP67
PC interface	USB
Operation temperature range	-20°C to +50°C
Relative humidity with air temperature ≤35°C without condensation	≤ 95%
Overall dimensions, weight	
Detection unit	Ø130x500 mm, 4.5 kg
HPC	4.7"
Tablet PC	10"

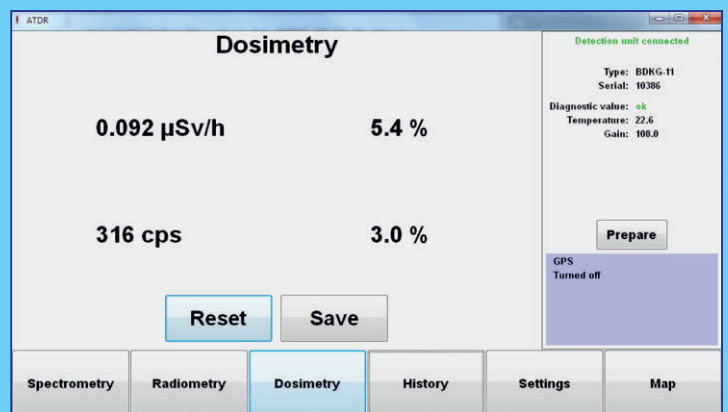
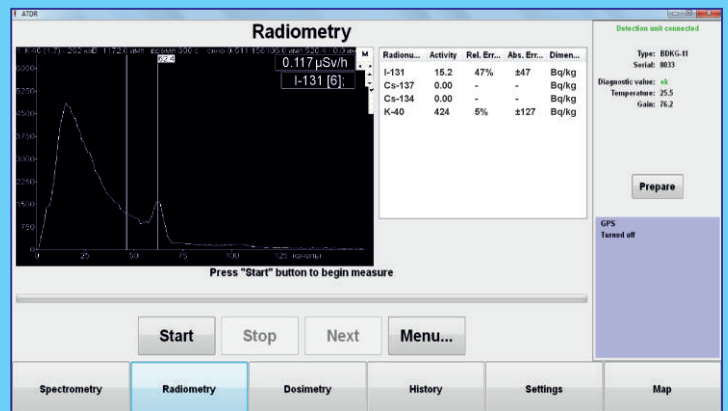
The spectrometer complies with: GOST 27451-87, Safety requirements of IEC 61010-1:2010, EMC requirements of EN 55011:2009, IEC 61000-4-2:2008, IEC 61000-4-3:2008, IEC 61000-4-4:2004, IEC 61000-4-5:2005, IEC 61000-4-6:2008, IEC 61000-4-11:2004

Design and specifications are subject to change without notice

"ATDR mobile" Software Main operation modes (HPC)



"ATDR" Software, Main operation modes (Tablet PC)



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