**APPLICATION OF SRI2(EU) CRYSTAL IN PROBLEMS OF GAMMA-RADIATION SPECTROMETRY**

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According to the requirements of international standards, the energy resolution of spectrometric equipment for radiation monitoring systems should be less than 4.5%. The Rosenergoatom standard STO 1.1.1.01.001.0875-2017 requires a spectrometric detection unit with a resolution of not above 4.5% for 137Cs radionuclide to be used at the radiation monitoring station ASCRO. Also, the ANSI N42.34-2015 standard introduces a requirement for the energy resolution of the spectrometric channel of radionuclide composition identifiers to be no more than 4%.

ATOMTEX SPE has developed a spectrometric detection unit based on the SrI2(Eu) scintillation detector with dimensions Ø38×38 mm. According to the results of the spectrometric studies of the detection unit, the typical resolution was 3.3% for the 662 keV line of the 137Cs radionuclide.

To minimize the influence of external factors on the characteristics of the spectrometric path, classical LED stabilization is used. To correct superimposed pulses from the ADC, pulse superposition rejection is used.

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| Detection unit | | BDKG-05S | BDKG-205A |
| Detector | | Scintillator  SrI2(Eu) Ø38×38 mm | Scintillator  LaBr3(Ce) Ø38×38 mm |
| Energy range | | 20 keV – 3 MeV | 30 keV – 10 MeV |
| Measurement range of ambient dose equivalent rate | | 30 nSv/h – 150 µSv/h | 30 nSv/h – 300 µSv/h |
| Energy dependence relative to 662 keV (137Cs) when using the hardware correction method | | ±20%  (50 keV – 3 MeV) | ±20%  (30 keV – 10 MeV) |
| Typical resolution at 662 keV (137Cs) | | 3,2% | 3,3% |
| Typical sensitivity to gamma radiation | 241Am | 5500 cps/(µSv/h) | 5400 cps/(µSv/h)  750 cps/(µSv/h)  380 cps/(µSv/h) |
| 137Cs | 850 cps/(µSv/h) |
| 60Co | 450 cps/(µSv/h) |

The developed spectrometric detection unit based on the SrI2(Eu) scintillator can be widely used both in stationary radiation monitoring systems and in mobile devices with the radionuclide identification function.