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Radiation Detection for OSI – The Influence of Firmware on Detector Performance

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Radiation detection devices comprise a detection unit and a signal evaluation unit, each adapted for the specific application of the device. Traditionally, signals of radiation detectors were evaluated utilising analogue methods, such as the standardised NIM electronics. Developments towards compact, high-performance digital hardware resulted nowadays in the application of digital data evaluation methods, both especially useful in hand-held devices used for on-site inspections due to lower weight, lower power supply and lower costs. The rise of digital data evaluation methods led to a variety of approaches and implementations, as no standardisation for digital data evaluation has been commonly agreed on so far. Therefore, it is essential to be aware of the influence of the implemented firmware on the detector performance.

Exemplarily, we will present our test results regarding the influence of firm- and hardware on the performance of the D3S, a wearable Radiation Isotope Identifier Device (RIID) from Kromek. The results have been gained utilising our QuTeSt (Qualification Test System for Radiation Detection Devices), a test environment to perform dynamic and static test measurements in accordance with international standards e.g. ANSI, IEC or ITRAP+10.

Powerful hand-held radiation detection devices with approved quality are of utmost importance for good OSI performance.

Promotional text

The success of on-site inspections relies heavily on the performance of sensor systems. The presented study will demonstrate the importance of valid firmware for reliable detector performance.

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