

XRF Result Repeatability Across Multiple Uncalibrated Instrument Components

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Moxtek is a manufacturer of components for low-power high-performance energy-dispersive XRF instruments, offering a complete XRF components solution with Si-PIN detectors, our new MXDPP-60 digital pulse processor, a variety of low-power high-performance X-ray tubes and low-profile tube controller. In addition, Moxtek offers an XRF Experimenter's Kit to serve as both a tool for teaching XRF systems concepts and to serve as a reference design for portable XRF systems.

Optimizing different components for effective and efficient XRF performance is always a challenge. Standard practice demands that when any component of the system needs to be replaced, the instrument needs to be recalibrated to a complete set of certified standards. We used our MXDPP-60 in our XRF Experimenter's Kit to test the repeatability of experiments when x-ray tubes and detectors are swapped out without recalibrating the instrument to reference standards. The purposes of the experiments are to determine how much variation exists between individual x-ray sources and detectors, to establish limitations on component variation, and to determine the viability of in-the-field swapping of components without needing to recalibrate the instrument to reference standards.